Pseudo-Dioscorides' "Ex Herbis Femininis" and Early Medieval Medical Botany
Author(s): John M. Riddle
Source: *Journal of the History of Biology*, Vol. 14, No. 1 (Spring, 1981), pp. 43-81
Published by: Springer
Stable URL: http://www.jstor.org/stable/4330774
Accessed: 06/09/2013 21:46

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
http://www.jstor.org/page/info/about/policies/terms.jsp

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Springer is collaborating with JSTOR to digitize, preserve and extend access to *Journal of the History of Biology*.

http://www.jstor.org

Pseudo-Dioscorides' *Ex herbis femininis* and Early Medieval Medical Botany

JOHN M. RIDDLE

North Carolina State University
Raleigh, North Carolina, 27650

> Actual social change is never so great as is apparent change. Ways of belief, of expectation, of judgment and attendant emotional dispositions of like and dislike, are not easily modified after they have once taken shape.
> – John Dewey, *Human Nature and Conduct*

Dewey's assessment of social change can readily be applied to scientific change in the early Middle Ages. The popular herbal of an unknown late fifth- or sixth-century author reveals that medical and botanical knowledge had only undergone apparent change. The Germanic barbarians brought (or continued?) political instability, but no radical change in medical practices. Although attributed to Dioscorides, the early medieval treatise *Ex herbis femininis* is largely a new work based on Dioscorides. It reflects a higher level of medical-botanical lore than currently attributed to the era, an uncommon linguistic skill in Greek and Latin, and some degree of originality, perhaps as much as can be expected in any herbal, whatever the time.

De materia medica by Dioscorides was fully translated into five Latin books probably by the sixth century. Likewise *Ex herbis femininis* was known in the West from the sixth century, and it was by far more popular than Dioscorides' own work. The popularity is measured by the number of extant copies. The Old Latin translation of Dioscorides is found in three complete, or nearly complete, manuscripts, two of the ninth century and one of the tenth.[1] *Ex herbis femininis*, which discussed some seventy-one herbal entries, is found in twenty-nine manuscripts, the majority lavishly illustrated.[2] By contrast, over 500

1. Munich Ms. 337, s. X; Paris BN Ms. lat. 12, 955, s. IX; Paris BN Ms. lat. 9,332, s. IX.

2. A complete listing and description of these manuscripts is forthcoming in my article on Dioscorides to be published in the Catalogus Translationum et Commentariorum series. In "The Medical Literature of the Early Middle Ages: A Program and a Report of a Summer of Research in Italy," *Bull. Inst. Hist. Med.*,

Journal of the History of Biology, vol. 14, no. 1 (Spring 1981), pp. 43–81.
0022–5010/81/0141/0043 $03.90.
Copyright © 1981 by D. Reidel Publishing Co., Dordrecht, Holland, and Boston, Mass.

herbs were treated in Dioscorides' Greek text. Thirteen of the manuscripts of *Ex herbis femininis* are dated twelfth century or earlier. Seven are from the ninth century alone. Given the statistical probability of greater loss of earlier manuscripts than of later ones, these figures demonstrate the popularity of *Ex herbis femininis*. Its existence was known and referred to by some sixteenth-century botanists, such as Petrus Andreas Matthiolus and Johannes Sambucus, who used manuscript copies to help them identify plants in Dioscorides' Greek text. In 1896 Heinrich Kästner published a text of *Ex herbis*, its only printing, but he employed only three manuscripts and his version is defective.[3]

In some ways *Ex herbis* was superior to the Latin version of Dioscorides' work. Although shorter, it was easier to use, and the herbs *Ex herbis* discusses were more related to the flora of southern Europe; it often provides more detailed medicinal directions than *De materia medica*, and in many instances it reveals improved knowledge of pharmacy. Part of the reason for the popularity of *Ex herbis* was that it was illustrated, while the Latin Dioscorides was not. Nowadays the mention of Dioscorides' name invokes the notion of illustrated herbals. From the marvelously illuminated folios preserved in the complete Juliana Anicia Codex of about 512 A.D. to the wondrous woodcuts of Leonard Fuchs, Giorgio Liberale, and Jacob Cortusius in the sixteenth-century printed editions, Dioscorides was associated with botanical illustrations.[4] And yet during the Middle Ages the Latin text of Dioscorides was not illustrated except for some crude marginal sketches in Munich Manuscript 337 (s. IX), which may have derived from direct observation.[5]

---

2 (1934), 36, Henry Sigerist said he had located "nearly fifty manuscripts of this text," but unfortunately he never published his list. Having completed a search myself, I believe Sigerist overestimated his findings.

3. Heinrich Kästner, "Pseudo-Dioscorides *De herbis femininis*," *Hermes , 31* (1896), 578-636, using Florence, Laur. Mss. Plut. 73.16 and Plut. 41.73, and Paris, BN Ms. lat. 6362; in this article, Kästner omitted two herbs that he later added in *Hermes, 32* (1897), 160. Sigerist ("Medical Literature," p. 36) noted the need for another text.

4. Fuchs' woodcuts appear in *Historia stirpium* (Basel, 1542); Giorgio Liberale's drawings were cut by Wolfgang Meierpeck for Matthiolus' 1554 edition (Venice) of Dioscorides; and Jacob Cortusius' drawings were done for Matthiolus' 1583 edition (Venice).

5. Hermann Stadler, "Der lateinische Dioscorides der Münchener Hof-und Staatsbibliothek und die Bedeutung dieser Uebersetzung für einen Teil der mittelalterlichen Medicine," *Allgemeine medicinische Central-Zeitung, 14* (1900), 1966, suggested that the drawings derive from textual descriptions, but this seems unreasonable to me. Those descriptions are far too sketchy to provide sufficient information except when supplemented by direct observations made from nature.

Still, the association of Dioscorides with illustrated herbals during the Middle Ages is not entirely unfounded. Medieval man thought *Ex herbis femininis* was by Dioscorides and it was beautifully illustrated in most manuscript copies.

Although I will not include here an iconographical analysis of the illuminations, a few general remarks are in order. Much is written disparaging the quality of illustrations in medieval herbals: they are said to be static, crude copies of copies, to have little resemblance to real plants, and so on. Like many generalizations, these descriptions contain elements of truth, but the case is overstated. The quality of illustration varies, of course, according to the manuscript. Limited individuality appears in each illustrator's depiction of the plant as a unit – root systems, stemmation, leaf structure, and appearance, flowers and/or seeds. A comparison of the illustrations in various *Ex herbis* manuscripts with the famous Juliana Anicia Codex of Constantinople reveals that the *Ex herbis* illustrations are not related to those in this version of the Greek text of Dioscorides. It must be left to others to determine whether the author of *Ex herbis* drew on a classical tradition for his drawings, as seems likely, or whether he caused the plants to be drawn for his own purpose. This much I feel some confidence in stating: if one already has some knowledge of plants, one can use many of the drawings in order to make a reasonable identification of some of the plants in the field. Since neither Dioscorides nor the author of *Ex herbis* gives detailed plant descriptions, the user must have had prior knowledge of plants. *Ex herbis* was no primer for a novice medical apprentice sent by his master to replenish the jars or for a monk on his initial assignment to infirmary duty. More to the purpose, *Ex herbis* probably extended knowledge and uses of plants on the part of medieval medical practitioners. When a generic name seems reasonably clear, one should not be unduly distressed by the difficulties of determining exactly which species is depicted in either the drawings or the text. The chemical compositions of various related species tend to have approximately the same pharmaceutical actions. The author's object was medical, not botanical.

The chapter on sage (*Ex herbis*, 4; see the table in the Appendix) demonstrates the difficulty in determining from the illustrations and text exactly what species, if any, was intended. Initially, the modern untrained eye might recognize sage even from the manuscript drawing.[6]

6. *Ex herbis* describes sage as "multos ex uno cespite stirpes mittit tetragonos et subalbidos. Folia habet mali cydonei [Greek: μηλέᾳ κυδωνίᾳ] similia, nisi quod angustiora et longiora et subaspera, odore suavi et gravi." Thus the leaves

But on closer inspection one can see a leaf arrangement impossible in nature. One stem has an alternate or spiral leaf arrangement that is characteristic of no species of sage. But the same stem also has parts of leaves arranged opposite each other, that is, two leaves at a node; this is characteristic of several species of sage, including *Salvia officinalis*, or common sage. The same stem also has three leaves on a single lobe, (See Figs. 1 and 2). Was the artist's intention to draw a composite of different species of sage? Probably. Still this does not explain the single, alternately arranged leaves on the one stem. Might it be that somebody brought the artist a plant from the garden that had had some of the leaves plucked off? If so, the artist would no doubt have seen, and depicted, these varieties of leaf arrangement on a single stem. There was no imperative, so far as I know, for the herbalist or artist to study only unaltered plants. He would know them as he encountered them. We have no means of knowing exactly what happened, of course; but we can be reasonably sure that this particular drawing, when included with the written description of the plant's appearance and uses, would enable a practitioner to identify and use the herb. Whether the user could distinguish among the species of sage is, in this case at least, unimportant. For medical botany, all the species would be used the same way.

Copies of *Ex herbis femininis* follow Pseudo-Apuleius' illustrated *Herbarius* in many manuscripts, and a few combine the two works by running the chapters continuously and without attribution to Dioscorides.[7] Sometimes a manuscript copyist selected chapters from *Ex herbis* and interspersed them with sections of Pseudo-Apuleius' work.[8] Pseudo-Apuleius' *Herbarius* illustrates some 130 herbs and

---

are described partly through analogy with the leaves of *Malus cydoneus*, but *Malus cydoneus* is otherwise not discussed by Dioscorides. The color description *subalbidus*, or "off-white," refers to the stem. Curiously, sage's purple or violet flowers are neither described nor drawn, although flowers are often described by both Dioscorides and *Ex herbis*.

7. Examples of *Ex herbis'* following Pseudo-Apuleius are: Cambridge, Trinity Col. Ms. 0.2.48, s. XIV; Florence, Laur. Ms. Plut. 73.41, s. IX; Florence, laur. Ms. Plut. 73.16, s. XIII; London, Brit. Lib. Ms. Add. 8928, s. X; London, Brit. Lib. Ms. Harley 5294, s. XII; London, Brit. Lib. Ms. Sloane 1975, s. XII; Vienna, NB Ms. 93, s. XIII. Those manuscripts that combine the two works continuously are: London, British Lib. Ms. Harley 5294, which has *Ex herbis* as chap's. 141–221, and Oxford, Bodl. Ms. 130, s. XI, fols. 57-66.

8. Paris, BN Ms. lat. 6862, s. IX; Leiden, Univ. Lib. Ms. B.P.L. 1283, s. XV (with material from other sources as well); Paris, BN Ms. lat. 13,955, s. IX; St. Gallen, Stiftsbibliothek Ms. 751, s. IX, pp. 339-340.

probably was produced in the fourth century.[9] *Ex herbis* probably was written a century or two later, as will be discussed below. There is some affinity between the illustrations in these two works, which may be expected whenever both were produced in the same scriptorium. Pseudo-Apuleius' procedure was to list headings under each herbal illustration by ailments, for example: "For stomach ache," "For wound," "For epilepsy." Both Pseudo-Apuleius' *Herbarius* and Pseudo-Dioscorides' *Ex herbis* discuss the same herb in some cases, but both the illustrations and medical uses are different. Rubrics and closings to some Pseudo-Apuleius manuscripts provide some evidence for associating the two tracts: Pseudo-Apuleius' *Herbarius* is referred to as being for masculine herbs.[10] Now undoubtedly the unknown authors of both herbals worked independently, at separate times, but later some manscriptorium combined the two. The copyist, simplistically and incorrectly, said that one was an herbal of masculine herbs, the other of feminine herbs. In time, *male* was dropped from the title of Pseudo-Apuleius' herbal, but Pseudo-Dioscorides' work retained the designation female.

Is there any reason to call the herbs female? The ancients had a very loose classification system for ascribing sexual gender to plants and even to stones. In general, male plants were considered harder, rougher, drier, and more barren, whereas female plants were softer, smoother, moister, and more fruitful. Theophrastus, for instance, advanced reasons for ascribing sex to trees: female trees are usually fruit bearing, although some male trees also bear fruit;[11] and in some cases, he declared trees were male because of their hardiness.[12] Pliny

9. Charles Singer, "The Herbal in Antiquity and Its Transmission to Later Ages," *Hellenic Stud., 47* (1927), 38; Ernest Howald and Henry Sigerist, eds. of Pseudo-Apuleius in *Antonii Musae . . . , Pseudo-Apulei . . .* , Corpus Medicorum Latinorum, vol. IV (Leipzig: B. G. Teubner, 1927), pp. xvii-xxi. Singer's view that Pseudo-Apuleius is a Latin translation of a Greek prototype has not been generally acceptance. See Henry E. Sigerist, "Zum Herbarius Pseudo-Apulei," *Sudhoffs Archiv, 23* (1930), 197-204, esp. p. 200.

10. London, Brit. Lib. Ms. Add. 8928, s. X, fol. 19: *Ex herbis masculinis*; see Augusto Beccaria, *I codici di medicina del periodo presalernitano (secoli IX, X et XI)* (Rome: Edizioni di storia e letteratura, 1956), p. 270.

11. Theophrastus, *On Plants*, 1.13.5, 2.7.4, 3.8.9; Albertus Magnus, *On Plants*, I, tr. 1, chap. 7; see notes and references by Edward Grant, *A Source Book of Medieval Science* (Cambridge, Mass.: Harvard University Press, 1974), p. 691. An important new study → John Scarborough, "Theophrastus on Herbals and Herbal Remedies," *J. His. Biol., 11* (1978), 353-385.

12. Theophrastus, *On Plants*, 3.9.3.

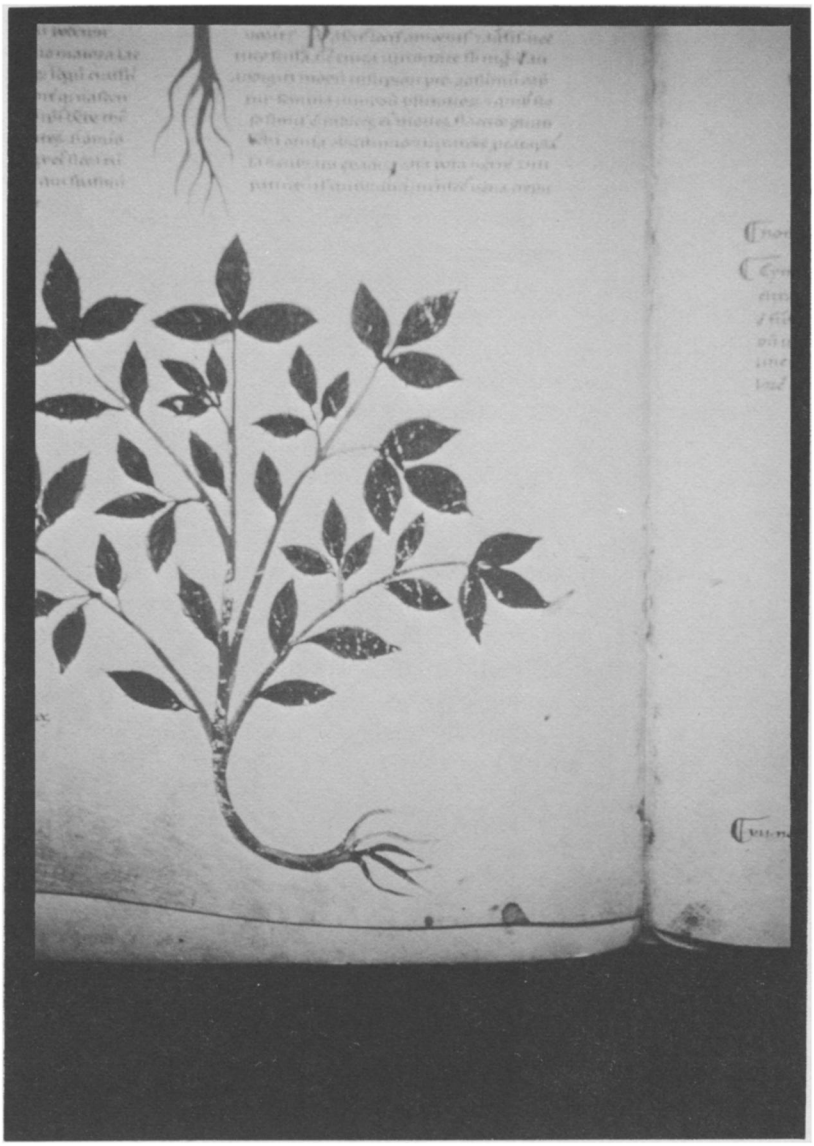

Fig. 1. The illustration of sage in the *Ex herbis femininis* manuscript in Vienna's Nationalibliothek (Ms. 93, s. XIII, fol. 137v).

Fig. 2. Detail of Fig. 1.

used the terms loosely to distinguish varieties of the same plant family. He called a kind of knotgrass male because it has more seeds,[13] and called one kind of tarragon female because it is less hard than the male tarragon and is easier to cook.[14] Dioscorides occasionally attached sexual labels to plants, but without advancing reasons for them. Similarly *Ex herbis femininis* did not provide and explanation of plant gender. Among the seventy-one herbal entries, *Ex herbis femininis* has five (nos. 12, 21, 22, 23, and 70)[15] that name both male and female varieties, but often with the statement that both have the same medicinal strength. The female mercury plant (no. 22) has seeds growing in clusters, *Ex herbis* noted, while the male's seeds grow from the stem. In only two entries (nos. 15 and 45) are the plants listed as being female. In one of these, "*dracontea feminia*" (no. 45), Dioscorides distinguished both larger and smaller varieties, whereas *Ex herbis* borrowed Dioscorides' description of the smaller plant without mentioning the larger, and called the plant female.

One twelfth-century manuscript copy gave the title of Pseudo-Dioscorides' tract as *De herbis mulieribus* and included the colophon: "Explicit atque proficitur liber medicinarum Dioscoridis ex herbis masculinis atque de herbis femininis sive semininis. Feliciter."[16] Thus at least one copyist, at some time in or before the twelfth century, wanted the treatise's title to be "Women's Herbs" rather than "Female Herbs," but also he let it known, through design or error, that it was concerned with both male and female, or seed-producing, herbs. *Semininis* is presumably meant to be *seminariis*.

In other versions *Ex herbis femininis* has two separate chapters on Mediterranean mezereon: in the first (no. 34) the plant is designated female; the other chapter (no. 42) says there are seven kinds of mezereon, but it distinguishes only male and female forms. The drawings in each chapter show two different plants[17] and the texts list different usages.

13. Pliny, *Natural History*, 27.91.113-117.

14. Ibid., 24.92.143.

15. I have followed the manuscript numbering system, especially that in Vienna Ms. 93, rather than the numbering in Kästner's published text because of his omissions of two herbs and his slightly different arrangement. See the Appendix for herbs, with Dioscorides' chapter numbers included.

16. London, Brit. Lib. Ms. Sloane 1975, fol. 73.

17. The drawings in *Ex herbis* in Vienna, NB Ms. lat. 93, fol. 147, showing titmallos (no. 34), are similar to those in the Greek Dioscorides in Vienna, NB Ms. Gr. 1, fol. 350, showing τιθυμαλλον ηλιοσκοπιος; but there is less similarity between Ms. lat. 93, fol. 149, showing titmallos (no. 42), and Ms. Gr. 1, fol. 351, showing τιθυμαλλον η οξυφυλλον.

There seems no adequate explanation of why *Ex herbis femininis* is so named. To say that the gender designation was employed occasionally to distinguish varieties is to ignore the numerous other instances when no attempt was made to differentiate varieties even among closely related herbs. Obviously, sexual labels were not systematically applied. One can only presume that the title was the product of a later copyist who sought to connect the herbals of Pseudo-Apuleius and Pseudo-Dioscorides by designating one male, the other female.

If we know then that the Pseudo-Apuleius and Pseudo-Dioscorides treatises were herbals falsely attributed to classical writers, what can we learn about when these attributions were first made? And, in the case of Pseudo-Dioscorides, was the authorship ascribed to Dioscorides at the period of the herbal's writing or later? Some manuscripts containing these herbals also include other tracts that may help answer these questions. These other tracts are Pseudo-Hippocrates' *Epistula ad Maecenatem*, Pseudo-Antonius Musa's *De herba vettonica*, (Pseudo-?) Sextus Placitus' *Liber medicinae ex animalibus, pecoribus et bestiis vel avibus*, and the anonymous *De taxone liber.*[18] In the case of each, except the last and possibly the obscure work by Sextus Placitus, the name of a known classical authority was attached. Probably this was done to lend authority and prestige and to forestall criticism. In our age, which extols uniqueness and novelty, it is difficult to imagine an age in which uniqueness was so undesirable that authors of original works scrupulously avoided claims of innovation and often went to the extent of obscuring their authorship. Just as the names of Hippocrates and Antonius Musa were attached to tracts to lend them authority, Dioscorides' name was no doubt added to *Ex herbis femininis* because he was the author of the largest work on materia medica written during antiquity. Similarly, Linda Voigts's recent argument is persuasive that Apuleius' name was attached to the *Herbarium Apulei* because of an association between Apuleius and the cult of Aesculapius.[19]

Gerhard Baader uses the term *Herbariencorpus* to describe these six treatises – *Ex herbis femininis* and the five mentioned above – associated in manuscripts, and places their association as a corpus "in and around

18. See the manuscripts described by Beccaria, *I codici*, index.

19. Linda Voigts's "The Significance of the Name Apuleius to the *Herbarium Apulei*," *Bull. Hist. Med., 52* (1978), 214-227, with excellent references to the controversy and related questions.

Ravenna" in the sixth and seventh centuries.[20] As Pierre Riché has observed, Ravenna in the sixth century was noted as a medical center – at least, it was where physicians were "particularly honored."[21] Possibly Dioscorides' name was attached then and there to *Ex herbis femininis*.

But this tells us nothing about the origin of *Ex herbis femininis*. It is uncertain when or where the unknown author lived, what sources other than Dioscorides he employed, when and by whom the drawings were made, and why the herbs were called female in the first place. These are an embarrassingly large number of unknowns for a work once so popular and highly influential. Varieties of evidence provide some tentative answers.

Several scholars have made suggestions about the time and place the writer lived. Hermann Stadler, for instance, postulated an African origin for the author on the basis of two African synonyms he added to Dioscorides' text: "Anchusae genera sunt duo; una quam Afri barbatam vocant est" and "Cynosbatos Latini zizfum agrestum dicunt, Punici didacholbat vocant."[22] Indeed, though I will later reject Stadler's argument, there are additional African synonyms in other chapters: "Colocinthis agria, id est cucurbita agrestis, quam Afri gelelam vocant" and "Eryngion quam Afri cherdan vocant."[23] I asked Gordon Newby, an Islamicist, for his advice on these allegedly "African" and Punic words, and I quote his reply:

> Re: "Colocinthis agria. id est cucurbita grestis, quam Afri gelelam vocant . . ."
>
> The problem of the identification of the African words in the *Ex herbis* is complicated by several factors. In the first instance, a distinction is apparently made between "Punic" and "African." It is

20. See Gerhard Baader, "Die Anfange der medizinischen Ausbildung in Abendland bis 1100," *La scuola nell' occidente latino dell' alto medioevo*, 2 vols. (Spoleto, 1972), II, 669-772, esp. 697; and also his earlier article, "Zur Überlieferung der lateinischen medizinischen Literatur des frühen Mittelalters," *Forschung, Praxis, Fortbildung. Organ für die gesamte praktische und theoretische Medizin, 17*, pt. 4 (1966), 139-141.

21. Pierre Riché, *Education and Culture in the Barbarian West from the Sixth through the Eighth Century*, trans. John J. Contreni (Columbia, S.C.: University of South Carolina Press, 1976), p. 70.

22. Hermann Stadler, "Dioscorides als Quelle Isidors," *Archiv für lateinische Lexikographie und Grammatik, 10* (1898), 411; Max Wellmann, "Dioskurides" (no. 12), in Pauly Wissowa, *Real-Encyclopädie der klassichen Altertumwissenschaft* (Stuttgart, 1903), V, pt. 1, 1134.

23. *Ex herbis*, nos. 47 and 54 (Kästner's nos. 46 and 53).

possible that this distinction is between the Northwest Semitic Phoenician dialect called Punic, but which varies little from its Mediterranean counterpart, and a dialect of one of the Hamitic Berber languages. If it is the case, as has been assumed, that the vocabulary designated "Punic" and "African" in *Ex herbis* derived through a literary source, then it is most probable that the distinction is artificial. Fifth century North African literate culture was primarily confined to the Mediterranean littoral with occasional incursions into the interior. We know that this population area was bilingual, at least, in Latin and Punic from Roman times and that the third major linguistic influence was Greek. Punic speakers survived in force into the fifth century as St. Augustine's Punic preferments demonstrate, so it is reasonable to assume that the term "African" could include Punic, as well as Latin, Greek, and, unlikely, Berber vocabulary, lacking evidence to the contrary. The second complication concerns the transmission of foreign words in a Latin textual tradition where it cannot be assumed that the original author or the subsequent transmitters were acquainted with the African language(s) in question. While we cannot be certain that the form of the words in our extant versions of *Ex herbis* is correct, any hypothetical etymology is subject to correction by a demonstration of a more valid textual tradition. The third difficulty involves our relative lack of knowledge of Punic, or Berber, for that matter, particularly in the realm of plant names. Most of our Punic vocabulary lists are derived from monumental inscriptions and from the Punic passages in Plautus. Decipherment of texts often rests on the ability of the scholar to find plausible analogs in other Semitic languages, relying on context to provide exact definitions.

In light of the above, it is possible to propose an etymology for one of the terms labeled "African" in *Ex herbis*, the term "*gelelam*." This is the "African equivalent of "*cucurbita*" gourd or cupping glass. If one assumes a root *GLL, a geminated form of *GL, one finds a Northwest Semitic analog, Aramaic *gelâl*, a lump, *gâlâl* (v.) to roll, *gâlâm* (v.) to roll up, and, in a reduplicative expansion of *GL, *galgêl* (v.) to roll. (M. Jastrow, *A Dictionary of the Targumim* . . ., New York, 1950, v. I). The semantic range of this root is paralleled in Arabic, cf. *jalla* and *juljul*. The semantic range of "roundness" parallels that of "*cucurbita*" and would seem to be apt in Semitic. If this be the case, it is possible that the terms "Punic" and "African" in *Ex herbis* overlap if not coincide, and it is probable that there was a genuine North African origin for the terms so named.

Under "red bulbs" (no. 44), however, the author of *Ex herbis* omitted Dioscorides' statement that they are "brought from Africa."[24] Under wild colocynth or bitter apple (no. 47), where *Ex herbis'* author gives the African synonym *gelelam*, he added that it has spread *per terram*, "throughout the earth."[25]

But the herbs listed in the treatise come from a southern European habitat, not an African one. Charles Singer, citing an apparently erroneous reference, reports that the author of *Ex herbis* may have lived in Ostrogothic Italy, but gives no reasons for this assertion.[26] Evidence presented in this paper supports the thesis that *Ex herbis'* author lived in Italy, southern France, or the Mediterranean littoral of Spain, probably in the fifth century, although an early sixth-century date seems possible. The 600 or so plants described by Dioscorides are preponderantly from the eastern Mediterranean regions.[27] The author of *Ex herbis* selected some seventy herbs (two chapters discuss the same plant). Difficult though it is to prove, the evidence suggests a southern European location for the plants described.

Botanical identification of the herbs according to modern classification is difficult. Descriptions are often vague or even lacking, and the drawings, as noted earlier, are often not accurate. Plants change their habitats and cultivation extends growth areas. Pilgrims, merchants, and traveling monks, especially those monks responsible for monastic herb gardens, could be expected to extend medicinal herbs to regions where the plants were not native.[28] Whereas the climate during Dioscorides'

24. *De materia medica*, 2.170 (vol. I, p. 236, Wellmann ed.).

25. *Per terram* might instead mean "on the ground," but the Old English version of *Ex herbis* (no. 185 in Thomas Oswalk Cockayne, *Leechdoms, Wortcunning, and Starcraft of Early England*, 3 vols. [London 1864-1866; repr. London: Holland Press, 1961], I, 325) translates the words *per terram* as "spreadth abroad its stems upon the earth." P. Font y Quer, *Plantes medicinales el Dioscorides renovado* (Barcelona: Editorial Labor, 1962), p. 770, says wild colocynth was not introduced to Europe until the Arabs brought it through Spain. My interpretation of *Ex herbis* would place the plant's introduction sooner.

26. Singer, "Herbal in Antiquity," p. 47, cites as his authority Max Wellmann, "Krateus," in *Abhandlungen der königlichen Gesellschaft der Wissenschaften zu Göttingen: Philologisch-Historische Klasse*, n.s. *2*, no. 1 (1900), but without pagination. I am unable to find Wellmann's statement.

27. C. Vaczy, "Nomenclature Dacica a plantelor la Dioscorides si Pseudo-Apuleius," *Acta Musei Napocensise* (Clui, Transylvania), *5* (1968), 59-73, esp. pp. 68-69; Jerry Stannard, "Medieval Herbals and their Development," *Clio Medica, 9* (1974), 24.

28. Linda E. Voigts, "Anglo-Saxon Plant Remedies and the Anglo-Saxons," *Isis, 70* (1979), 259-261.

time (first century A.D.) was approximately the same as today's climate, and the vegetation found in both periods is similar,[29] a variety of evidence points to the likelihood that climate was different in the late Roman and early medieval periods. From the second century A.D. to about 350 A.D. the climate in Italy was rather moist; there followed a drier period to about 450, with dry periods repeated around 800 and in the nine hundreds.[30] Evidence derived from the Fernau glacier, analyses of pollen indicating growth and recession of forests near peat bogs, changes in crop and vineyard growth areas, dendroclimatology, and other data suggest that from 300 to 500 A.D. there were warm summer periods accompanied by generally dry and cold winters in the area of Europe around near 50° N. Similar periods were repeated in the ninth and tenth centuries, and the years from 1000 to 1200 are associated with a moderate, warm climate and optimal growing conditions.[31] Linda Voigts has speculated on the basis of literary and climatological evidence that the erratic early medieval climate may have affected the kinds of crops and herbs cultivated in Anglo-Saxon England.[32] We may project similar patterns in vegetation changes throughout Europe. A further problem in botanical identification is that nomenclature shifts. The word used to refer to a plant in one era may not refer to the same plant in another.

But even with these problems, many identifications can be made with reasonable certitude. In the list of plants in *Ex herbis* there is no exception to this rule: where identification seems at least fairly certain the plants have southwestern Europe as a natural habitat. A few have wet, moist plains as their home, while some have mountains, for instance, the Alps or the Pyrenees. Proposing a north African origin for *Ex herbis* is therefore almost certainly incorrect. Its author was

29. Charles E. P. Brooks, *Climate through the Ages*, 2nd ed., rev. (New York: Dover, 1970), esp. pp. 300, 310ff; H. H. Lamb, *The English Climate*, 2nd ed. (London: English Universities Press, 1964), p. 162; Robin Birley, "A Frontier Post in Roman Britain," *Sci. Amer., 236* (February 1977), 44.

30. H. H. Lamb, *Climate: Present, Past, and Future*, 2 vols., vol. II, *Climatic History and the Future* (London: Methuen, 1977), pp. 426-429; Brooks, *Climate through the Ages*, pp. 300-301.

31. Brooks, *Climate through the Ages*, pp. 310-311; Georges Duby, *The Early Growth of the European Economy*, trans. Howard B. Clarke (Ithaca: Cornell University Press, 1974), pp. 6-11; Jean Gimpel, *The Medieval Machine: The Industrial Revolution of the Middle Ages* (New York: Holt, Rinehart and Winston, 1976), pp. 30-32; Lamb, *Climatic History*, pp. 34-40, 426-429.

32. Voigts, "Anglo-Saxon Plant Remedies," pp. 261-263.

selecting herbs, those most readily available in his region, that were most useful in medicine.

Other evidence supports my contention. A copyist of Pseudo-Apuleius' *Herbarius* omitted some plants that were not grown in Central Europe, where he was copying the manuscript. For those plants he substituted plants locally grown.[33] Further, an eleventh-century copy of an Old English translation of selected chapters from *Ex herbis femininis* reveals that an unknown Old English author-translator altered his material and in some cases seems to be discussing plants different from those in *Ex herbis.*[34] Presumably, he made these changes to suit the botanical characteristics of his region.

If *Ex herbis* was written in southern Europe, when did the author live? Three pieces of evidence support the contention that the herbal was in existence by the sixth century: (1) a statement by Cassiodorus; (2) an anonymous letter, perhaps by Cassiodorus; (3) Isidore of Seville's use of *Ex herbis*.

Writing not later than 562 A.D., Cassiodorus advised some monks: "If you have not sufficient facility in reading Greek, then you can turn to the herbal of Dioscorides, which describes and draws the herbs of the field with wonderful faithfulness."[35] This quotation usually cited as evidence that the Old Latin translation of Dioscorides' full five books was completed by Cassiodorus' time; to this manuscript Cassiodorus allegedly advised the deplorably ill-trained monks to turn. More probably, however, Cassiodorus was referring them to Pseudo-Dioscorides' *Ex herbis femininis*. As observed earlier, manuscripts of Dioscorides' old translation are not normally illustrated, and Cassiodorous' reference was to work that was "drawn with wonderful faithfulness." Moreover,

33. Sigerist, "Medical Literature," p. 34; Erhard Landgraf, "Ein frühmittelalterlicher Botanicus," *Kyklos, 1* (1928), 3–36.

34. As shown in the Cockayne ed., and as noted in the Appendix. Hubert Jan de Vriend, *The Old English Medicina de quadrupedibus* (Tilburg: D. U. H. Gianotten, 1972), observes numerous instances of modifications and misunderstandings by the Old English translator(s) of this work attributed to Sextus Placitus. In the case of one manuscript, Oxford, Bodl. Ms. 130, which contains fragments of the Latin *Ex herbis femininis*, he sees evidence that the *Medicina de quadrupedibus* section may be a translation, at least in part, back into Latin from the Old English and one made by "a translator who did not know Old English very well" (p. xlv). I have compared the fragments of *Ex herbis* in Bodl. Ms. 130 with other texts and can report that they reveal no signs of being a Latin translation of the Old English.

35. Cassiodorus, *Institutiones divinarum et humanorum litterarum*, chap. 31.

he used the word for herbal. Dioscorides' text, usually called *De materia medica*, described items from all three kingdoms, animal, vegetable, and mineral, and thus was not restricted to herbs. This argument is not completely firm, however, because in rare instances during the Middle Ages Dioscorides' complete text was referred to as an herbal.[36] Nonetheless, Cassiodorus was probably referring to *Ex herbis femininis*.

An anonymous letter to Marcellinus is found in two manuscripts, one of the twelfth century, the other of the ninth. The letter reads:

> With you as I may say with all good art which has not been studied [in our age] in the old manner because it (that is, learning) is subject to change among us, Marcellinus, I send you the best known, little botanical book from Dioscorides' book, converted into Latin, and in which are drawn herbal figures. I commend not only the pleasing fidelity of the writing to you but also on both sides of the folios it is carefully described so that one may not make errors about what the herbs are, neither will they misjudge their healing qualities nor will they missidentify their varieties.[37]

In both manuscripts, the letter follows Pseudo-Apuleius's *Herbarius*. I observed above that in many other codices *Ex herbis femininis* follows Pseudo-Apuleius. Although the suggestion was made by Max Wellmann and Valentin Rose that Marcellinus is the same as Gargilius Martialis (flourished c. 222-235), the earliest-known Latin author to cite Dioscorides,[38] it seems too much to expect *Martialis* to become *Marcellinus*. I advance this possibility: The letter was written by Cassiodorus to Marcellinus (flourished c. 534), the secretary of the patrician Justinian who continued Eusebius' chronicles to the beginning

36. E.g., one copy of the Old Latin translation has the title *De virtutibus herbarum*. See Paris, BN MS lat. 12,995, s. IX, fol. 1.

37. The letter is found in London, Brit. Lib. Ms. Harley 4986, s. XII (variously dated from s. X), fol. 44v, and was published from this manuscript by Valentin Rose, "Ueber die Medicina Plinii," *Hermes, 8* (1874), 38; cf. Beccaria, *I codici*, pp. 252-254. The letter also appears in Lucca, Biblioteca Governative Ms. 296, fol. 18v, and published in part by P. Giacosa, *Magistri Salernitani nondum editi* (Turin, 1901), p. 351. Giacosa identifies part of the text as by Dioscorides, but it was not so identified by Beccaria (pp. 285-288). The letter is published from both manuscripts by de Vriend, *Old English Medicina*, pp. xlii-xliii, who verifies that Giacosa was correct in recognizing *Ex herbis* in the Lucca Ms.

38. Wellmann, "Dioskurides," pp. 1134-1135; Rose, "Medicina Plinii," p. 38.

of Emperor Justinian's rule.[39] The reference is to *Ex herbis femininis* because of (1) its location in the two manuscripts; (2) the words *libellum botanicon*, instead of *materia medica*; and (3) again the mention of illustrations. Finally from my interpretation of the other Cassiodorus quotation, I believe that Cassiodorus knew and appreciated *Ex herbis*.

Valentin Rose proposed that Isidore of Seville (c. 560-636) used *Ex herbis* as a direct source for his botanical discussions in *Origines*, Book 17, Chapters 7-11.[40] Rose compared the wording of Isidore's text for "bupthalmos" with the text for "bustalmon" in *Ex herbis* (no. 30). Herman Stadler pursued the suggestion by comparing other entries and noted the resemblance of the two texts in discussing "aristolochia" (no. 12), "celedonie" (no. 18), and "colocinthios" (no. 47). To the lists by Rose and Stadler can be added "buglossos" (no. 2; cf. Isidore 7.10.20). Stadler categorically rejected any assertion that *Ex herbis* is an extract of Isidore.[41] Even though Isidore based most of his botanical research on Pliny's *Natural History*,[42] the case is strong that Isidore knew the Pseudo-Dioscoridean text. Compared with Isidore's work, *Ex herbis* has much more information concerning the herbs, information that is known from no other identified source. Thus the author of *Ex herbis* did not use Isidore's *Origines* as his source; instead Isidore employed *Ex herbis* when he wrote early in the seventh century. Rose's suggestion is correct.

Ex herbis' language suggests late classical, early medieval Latin, that is, a date around the fifth century. The author unquestionably knew his languages well. There are a few examples of barbarisms, but far

39. Cassiodorus, *Letters*, 1.17.1-2 (L. W. Jones ed.); cf. Max Manitius, *Geschichte der lateinischen Literatur des Mittelalters*, 3 vols. (Munich, 1911-1931), I, pt. 2, pp. 79, 116-117. No other letter by Cassiodorus is addressed to Marcellinus, but it is clear that Cassiodorus held him in respect. About the time Marcellinus was writing his *Chronicum*, Cassiodorus was heading a Christian school in Rome that he had founded about 535 and that survived until it was destroyed in the fighting between Totila and Belisarius in the late 540's. See Pierre Paul Courcelle, *Late Latin Writers and Their Greek Sources*, trans. Harry E. Wedeck (Cambridge, Mass.: Harvard University Press, 1969), p. 334; for Cassiodorus' knowledge of Marcellinus' work, see pp. 261n, 374, 395, and 410.

40. Rose, "Medicina Plinii," p. 38; accepted by Singer, "Herbal in Antiquity," p. 47; Wellmann, "Dioskurides," p. 1134; and Lynn Thorndike, *A History of Magic and Experimental Science*, 8 vols. (New York: Macmillan, 1923-1941), I, 609.

41. Hermann Stadler, "Dioscorides als Quelle Isidors," *Archiv f. lat. Lex. u. Gram., 10* (1898), 403-412, esp. pp. 409-410.

42. Ernest H. F. Meyer, *Geschichte der Botanik*, 4 vols. (Königsberg, 1854-1857; repr. Amsterdam: A. Asher, 1965), II, 391.

fewer than are present in the Old Latin translation of Dioscorides, which was probably made in the sixth century.[43] And there are examples of new vocabulary words.[44] These qualities, in addition to the fact that no one earlier than Cassiodorus (c. 562 A.D.) refers to *Ex herbis* and no one earlier than Isidore (c. 560-636) quotes from it, are the principal factors in postulating a fifth-century date, or at any rate a date no later than early sixth century.

The translations from Dioscorides seem to be direcly from the Greek and in short, crisp Latin. The lexical skills were quite remarkable. The translation is free and frequently interspersed with additional comments either about the plants or about their medicinal uses. Most notably, the author added details about how to prepare and compound the herbs as medicines and how to administer them that Dioscorides had not included.

Ex herbis femininis is substantially a new botanical-medical treatise and contains new medical and botanical contributions; it added to, modified, and subtracted from the Dioscoridean core. Of the seventy-one chapters, only eighteen or nineteen are translated from Dioscorides with insignificant changes.[45] In no case is the translation a complete, unmodified Latin version of Dioscorides' Greek. In some twenty-nine chapters, the author has modified the Greek text and added medicinal uses of the plants not contained in Dioscorides' work.[46] In thirteen or fourteen, the text is completely new and totally unrelated to Dioscorides or, as will be shown later, to any other known literary

43. Hermann Stadler, "Der lateinisches Dioscorides der Münchener Hof-und Staatsbibliothek und die Bedeutung dieser Uebersetzung for einen Teil der mittelalterlichen Medicin," *Janus, 4* (1899), 548-550; and same title by Stadler but different text in *Allgemeine Medicinische Central-Zeitung, 14* (1900), 165-166; *15* (1900), 179-180; Vinzenz Bulhart, "Lexikalisches zum Spätlatein," *Wiener Studien: Zeitschrift für klassische Philologie, 67* (1954), 145-161; Max Niedermann, *Recueil Max Niedermann* (Neuchâtel: Secretariat de l'Université, 1954), pp. 39-43 and passim.; H. Mihaescu, "La versione latine di Dioscoride tradizione manoscritta, critica di testo, cenno linquistico," *Ephemeris Dacoromana, 8* (1938), 298-348; Hermann Stadler, Lateinische Pflanzennamen in Dioskorides," *Archiv für lateinische Lexikographie und Grammatik, 2* (1898), 83-114.

44. For a list of barbarisms and new vocabulary in *Ex herbis*, see Kästner, "Pseudo-Dioscorides," p. 579.

45. The chapter numbers are: 7, 11, 12, 14, 15, 16, 18, 20, 23, 26, 27, 28, 30, 33, 38, 41, 48, 51, 52 (maybe unrelated?), and 71. Throughout the chapter numbers are as they appear in most manuscripts, esp. Vienna Ms. 93, since Kästner's edition omits two chapters.

46. Nos. 1, 2, 3, 4, 5, 6, 8, 9, 10, 17, 19, 21, 22, 24, 25, 29, 32, 36, 37, 40, 42, 43, 45, 54, 56, 59 (?), and 70.

source.[47] Seventeen chapters significantly modify plant descriptions. In at least three chapters, differences in plant habitat are noted.[48] In one chapter (no. 31) the identification of the herb is uncertain because of an inability to find the equivalent chapter in Dioscorides.

The chapter on sweet marjoram (no. 10) is a good example of how the author modified his material. Dioscorides said marjoram's leaves are "rough and round like catmint [καταμίνθης]," but *Ex herbis*' author, showing some care in translating as well as botanical knowledge, said the leaves are "rough and round, similar to *nepeta*." *Nepeta* is a variety of catmint known as Italian catmint. Rather than merely being content with transliterating the Greek to *cataminthus*, which is acceptable in Latin, the author-translator sought to identify the herb specifically by referring to a variety known in his locality. To Dioscorides' list of medicinal uses, *Ex herbis* added that the herb is useful in treating urinary complaints and a gripping pain of the intestine. Interestingly, a modern herbal by M. Grieves reports that sweet marjoram alleviates "spasms, colic, and . . . pain in dyspeptic complaints."[49] Where Dioscorides said it relieves swellings or tumors (*οἰδήματα*), *Ex herbis* was more specific: "eye tumor," *tumores oculorum*. *Ex herbis* follows Dioscorides in giving a synonym, *amaracon dicitur Cyzicenis*, but one eleventh-century copy omits this synonym and adds one of its own: *arabos dicitur herba ezuae*.[50] Perhaps even before the translations from Arabic to Latin, the copyist was adopting the text to his own time.[51]

In discussing sea holly's root (no. 54), the author said they "are collected at the summer solstice before the rising sun," material not in to Dioscorides' text, and omitted Dioscorides' claim that sea holly is a good amulet. *Ex herbis* directed that sea holly be cooked in oil until it is viscous, then placed in wax, then blended with three parts (?) of silver foam, and finally mixed with ashwood twigs. This recipe is "a wonderful aid against scorpion and all snake bites or mad dog bites if the wound is first opened by iron and it is applied locally so that the sick person does not perceive the smell. [At] this temperature [the

47. Nos. 35, 50, 57, 58, 59 (possibly), 60, 61, 62, 63, 64 (?), 65, 66, 67, and 69.

48. Nos. 8, 9, 10, 11, 23, 25, 27, 29, 33, 34, 37, 45, 51, 53, 59, 69, and 71, modify plant descriptions. Nos. 1, 5, and 11 give different plant habitats.

49. M. Grieves, *A Modern Herbal* (New York: Dover, 1971), p. 521.

50. Florence, Laur. Ms. Plut. 73.41, s. XI, fol. 91 (124).

51. John M. Riddle, "The Introduction and Use of Eastern Drugs in the Early Middle Ages," *Sudhoffs Archiv, 49* (1965), 185-198.

formula] also cools St. Anthony's fire, and it resists gout if applied at its inception."

More typical modifications are less drastic but have some medical significance. Under hawthorn (no. 1), *Ex herbis* translated Dioscorides' statement that applied locally it is good for swellings (*οἰδήματα*) with the phrase "applied locally it removes bruises [*livores*]." Thus *Ex herbis* refined the indefinite Greek word *οἰδήματα* to read "eye tumors" in the chapter on majoram and here to read "bruises." In five chapters *Ex herbis*' author came across Dioscorides' word *ἴκτερον*, meaning jaundice; twice (nos. 30 and 53) the author simply transliterated the word into *ictericon*, while in three chapters (nos. 29, 41, and 49) he inconsistently translated it *morbum regium*. In no. 41 he explained: "morbum regium id est ictericon." Examination of his free translation reveals that the author was no novice who dealt clumsily with Greek and Latin.

His linguistic knowledge was good but, more important, his medical and botanical knowledge was sufficiently sophisticated enough to allow him often to give more detailed analyses, more precisely and medically descriptive, than those recorded by his highly regarded classical authority, Dioscorides. For instance, still under hawthorn (no. 1), Dioscorides wrote, "Thus the root being drunk is good for hematosis [*ταὐτης ἡ ρίζα πωμένη ποιεῖ πρὸς ἀιμοπτυικούς*]." The author of *Ex herbis* loosely translated this as: "Thus the root, beaten and grated, taken in two spoonfuls, drunk with water, is good for hematosis . . . [Huius radix tunsa et cribrata ad modum cocliaria duo cum aqua pota obduris, haemoptoicis . . .]."

We find examples of the author's knowledge throughout the herbal. To Dioscorides' assertion that burrage (no. 2) makes one happy at parties, the author of *Ex herbis* added that its leaves perforated are a good condiment when added to food. Dioscorides said that acantha (no. 3), or bear's breech, is "useful for convulsions and ruptures [*ῥῆγματι* = in sense of fractures or breaks]," which *Ex herbis* rendered as it "heals inner veins which burst open" (that is internal hemorrhaging). Dioscorides asserted only that the root is drunk; *Ex herbis* added, "The root dried, beaten and grated, drunk with water." Sage (no. 4), Dioscorides said, is good "for wounds, staunching blood and as a cleanser of malignant humors [*καὶ τραυματικὴ καὶ ἰσχαιμος καὶ ἀποκαθαρτικὴ τῶν θηριωδῶν*]." *Ex herbis* translated this as: "it stops blood from wounds, it cures old, festering bites of wild animals, and it joins together open wounds," which is really hardly a translation at all. And, to sample more at random, *Ex herbis* omitted Dioscorides' claims that if psyllium

plantain (no. 25) is brought into the house, it prevents fleas from breeding, but added that it cures a protruding umbilicus. Whereas Dioscorides said horsetails (no. 32) stop bleeding, *Ex herbis* refined the statement to read, they are "good for ruptured veins within the body and on the eyes." A preparation of ground olive's leaves cleans filthy, festering wounds, wrote Dioscorides, while *Ex herbis* (no. 39) said their use should be continued until the wound has healed. Sorrel (no. 49), *Ex herbis* said, cures cysts on the breast; Dioscorides merely mentioned cysts without giving a location. Common teasle (no. 52), "beaten, chopped up, and drunk in warm water, cures one of worm disease most perfectly," *Ex herbis* added to Dioscorides' text in another place. Not all uses discussed are medicinal. Golden thistle (no. 36) was said by both Dioscorides and *Ex herbis* to remove bad smells from the armpits – indeed the entire body – and to reduce the smell of urine. Dioscorides noted that the herb is put in asparagus, presumably to counter the smell of urine, while *Ex herbis* simply said golden thistle is a healthy food.

The early medieval writer included a number of herbs used as abortifacients and one used as a contraceptive, but he said less about these uses than Dioscorides did for the same herbs. Shepherd's purse (no. 16) was said by both Dioscorides and *Ex herbis* to abort a fetus in pregnancy.[52] Likewise ploughman's spikenard (no. 28), friar's cowl (?, no. 45), and opoponax (no. 64) cause termination of pregnancies. Germander (?, no. 8), Dioscorides said, carried off the menses and embryo, while *Ex herbis* said, "it draws out the menses and expels a dead fetus." Both say that "aristolochia" (no. 12) "expels a retained fetus [*Ex herbis*: "herentes fetus discutit"]." Strictly speaking, these herbs are probably not intended as abortifacients. There is only one clear prescription of a contraceptive and this is suspect by modern judgment. Translating Dioscorides almost literally, *Ex herbis* reported of spleenwort (no. 41): "If it does not see the moon, collected by day or night, it is suspended [around the neck] with the spleen of a mule and it does not allow one to conceive." And the unidentified herb "isfieritis" (no. 31) was named by *Ex herbis* as an aid to conception. For three herbs (nos. 45, 56, and 59), however, *Ex herbis* omitted Dioscorides' claims about abortifacient qualities. The fact that there are fewer abortifacients in the later treatise than in its model is no certain indication that early medieval medicine was less inclined than classical medicine to abortions. Other early medieval medical writings are filled

52. The Old English version of *Ex herbis* states that it provokes menstruation – Cockayne ed., no. 150, I, 275.

with abortifacients. The author of *Ex herbis* was probably indicating by his omission his judgment on the herbs' effectiveness in causing abortions.

The old idea that early medieval medical works are replete with superstitions, clarms, amulets, and magic is shattered by *Ex herbis femininis*. Although it contains some instances of what today we call supernatural elements, they are few. Only three instances are noted among the hundreds of uses of herbs. In every case, the supernatural element is taken directly from Dioscorides. In four other places *Ex herbis*' author, even when translating from Dioscorides, has omitted superstitious elements from Dioscorides' text. In material added by *Ex herbis*' author, there is no mention of the supernatural. Snapdragon (no. 23) is worn as a suspension to keep away dangers, reported both Dioscorides and *Ex herbis*. Squill (no. 53), both stated, is suspended above doorways to keep out evil spirits. And, finally, there is the prophylactic use for spleenwort (no. 41), mentioned above. *Ex herbis* omitted Dioscorides' claim that friar's cowl (?, no. 45) emits a smell from its withering flowers that will destroy a newly conceived embryo; that sorrel's (no. 49) roots worn as an amulet around the neck alleviate *struma* (goiter or scrofula); that common plantain (no. 51) similarly worn dissolves *struma*; and that sea holly (no. 54) is worn as an amulet. One case is uncertain. *Ex herbis* added to Dioscorides' account that mayweed (no. 19) portends death. Accordingly, its juice is mixed with *aegrotus* oil to determine the imminence of death: if smeared on the body of a patient and he sweats, then death is coming; if the patient "sweats to a lesser degree," then he remains "longer." In the absence of modern experimentation, one must allow for the possibility that the mixture could have some physiological effect in inducing perspiration. Whatever may be the truth about mayweed, *Ex herbis* was definitely less superstitious and supernatural than comparable classical works.

Plant descriptions also are different in *Ex herbis* and Dioscorides' treatise. Generally, *Ex herbis* shortened Dioscorides' plant descriptions, occasionally completely omitting them. It may be noted again that *Ex herbis* had an accompanying picture of each plant, whereas the Latin Dioscorides had no such aid. Even so, *Ex herbis* often modified the description. One example is psyllium plantain (no. 25). Dioscorides reads:

> Psyllium has leaves similar to *coronopis*, hairy, twigs a thumb span long, and the whole plant grasslike. The leading part is the foliage from the middle of the stalk, two or three heads on the top twisted

> up, in which seeds are like fleas, the black, hard kind. It grows in the countryside [*φύεται ἐν αρούραις*].

Ex herbis reads:

> Psyllios. So-called because its seeds appear like fleas, the same as *cynomia*. In Latin they call the herb *pulicaria*, or fleawort. The leaf has small prickles, the stem branches, dry and fragile all over; from the middle of the stem it sends out stalks at the highest point, two or three heads in which the seed is black similar to fleas. It is found in cultivated places.

Thus *Ex herbis* says its habitat is cultivated places, while Dioscorides says its habitat is the countryside.

Elsewhere the author of *Ex herbis* also varied the habitat, presumably to suit better his time and place. Where Dioscorides mentioned Eastern habitats, *Ex herbis* omitted them (compare, for example no. 5 with Dioscorides, 3.60). Dioscorides said hawthorn (no. 1) "grows in mountainous and woody places," which *Ex herbis* rendered as "it grows in mountainous and rockly places and dry places." For cumin (no. 5) *Ex herbis* omitted Dioscorides' statement that "it grows in the hills [*φύεται ἐν γευλόφοις*]"; but for houseleek (no. 11), Dioscorides' phrase "It grows in hilly places and places of broken pottery" is changed in *Ex herbis* to "in mountainous places ["in locis montuosis"]."

Most plant modifications are minor. In describing germander (no. 8), *Ex herbis* added this line to Dioscorides: "From one root many branches lead out into the turf." In describing annual mercury (no. 22), Dioscorides said there is a male and a female; the seed of the female grows in thick clusters and the male has small round stems longer than the female's. *Ex herbis* stated: "The seed of the female grows in clusters, the masculine on the stem itself." In this entry, *Ex herbis* added a synonym, *hermubotane*, for the herb.

For the color of flower *Ex herbis* sometimes changed hues slightly. Dioscorides reported knotgrass (no. 9) flowers as being white and purple (*φοινικοῦν* = purple toward red), while *Ex herbis* translated as white and ruddy, or rosy (*roseum*). Dioscorides said snapdragon's (no. 23) flowers are purple (*πορφύρα*), while *Ex herbis* has rose-colored (*colore roseo*), but for wall flower and/or mountain pansy (no. 59), where Dioscorides says its flowers are white, yellow, and purple (*λευκὸν*

ἡ μήλωον ἡ πορφυροῦν εὑρίσκεται), *Ex herbis* accurately translates, "purple, white and yellow [*purpureum*, album et melinum]."[53]

Usually the author of *Ex herbis* transliterated Greek plant names into Latin letters, but sometimes this procedure changed the nomenclature. *Ex herbis*' "cestros" (no. 11) is not Dioscorides' κέστρον (4.1), but Dioscorides' ἀείζωον μέγα (4.88), or houseleek. To *sideritis* (no. 20), *Ex herbis* adds, "quam Afri cherdan vocant"; to *iera* (no. 55, or our vervain), *Ex herbis* adds, "quam Latini verbenam."

Fourteen or fifteen chapters in *Ex herbis* are completely different from anything in Dioscorides, even though for each of these herbs Dioscorides has a complete description of the plant and medicinal uses. The reason for this is unclear. The herbs are found throughout Dioscorides' text and in the same books as other entries from which the author of *Ex herbis* freely translated. Dioscorides included medicinal uses that were ignored in *Ex herbis*, but the sixth-century author added many new uses. Moreover, for many of the new entries the style changes. For many, not all, the style is to list ailments and then describe medicinal preparation. For heliotrope, which is either weber dandelion or chicory, *Ex herbis* has two separate, and separated, entries (nos. 35 and 50) with slightly different illustrations, but there are no descriptions to enable us to discern the differences between the plants. Entry no. 35 reads in *Ex herbis*:

> Heliotrope, so-called because its flowers turn to meet the course of the sun. By others it is called *helioscopion* and by the Romans *woods intybum*.
>
> For disease of the spleen. Take the juice of heliotrope with 17 grains of pepper for three days and you will marvel.
>
> For headache: Place the juice of the herb heliotrope with rose oil; anoint on the head and forehead.
>
> For heart-burn: Prepare it thus: ten drachmas of spice nard, thyme honey 4 drachma, 3 drachma casia, 4 drachma pepper, 4 *misces* with wine and with the juice of the aforesaid herb above, *cocliaria* 3, form in a round ball of 2 scrupula and administer in a drink in wine. It frees one.

And entry no. 50 reads in part:

53. Of course, *Ex herbis* could have employed another source here and not translated Dioscorides. Isidore (17.9.19) follows *Ex herbis*.

> Heliotrope – wheresoever it is found it is neither simple nor in rows.
>
> For warts: leaves from the highest parts and warts *inde fricabis*. With 3 parts . . . in vinegar, they suddenly fall away and they do not come back again.
>
> For scabies of the whole body . . .
>
> For disease of the bladder . . .

Pseudo-Apuleius's treatise has an entry on heliotrope and, although the same style of presentation is used, there is no similarity in texts.[54]

There are other examples of completely different material that *Ex herbis* added in the same style as Dioscorides, for example, "centimorbia," possibly yellow loosestrife or creeping Jenny (no. 58), and "cynosbatos," or dog rose (no. 62). It is possible in these cases that *Ex herbis*' author had an entirely different plant in mind than did Dioscorides, but Dioscorides' textual descriptions of other plants may have been his source. *Centimorbia* may be either a new plant introduced by *Ex herbis* or a new plant name. In the case of scarlet pimpernel (no. 63), the author omitted Dioscorides' description of the plant, translated two sentences from Dioscorides, and then added considerable new information. From Dioscorides he used: "Place in the nostrils, it drives away phlegm and all bad humors. It calms the toothache." He added:

> If the juice is mixed with rose oil and smeared on the face, one will look cheerfully on all things. It is effective for a light, smooth complexion on women. *Anagallis* juice, mixed with honey, Indian *lycium* and bitter vinegar, and anointed on a woman's face, makes the face clear and soft. For epileptics who have alien dispositions: The anagallis juice mixed with honey and injected in the nose by purging the head restores a balanced mental attitude to the epileptic. For removing blemishes from the head . . .

And so it goes, but where did the author get his material?

54. Pseudo-Apuleius no. 49 (pp. 99-100, Howald-Sigerist ed.): "Herba Heliotropia. 1. Ad omne venenum. Herba heliotropiae pulverem mollissimum ex ea aut sucum eius, cum vino veteri optimo potui datum mire venena discutit. 2. Ad luxum herba heliotropia contusa et adposita efficaciter sanare dicitur." There follows a nomenclature section that is thought to be a later addition: "A Graecis dicitur heliotropia, alii heliotropos. alii heliopun, aii adialiton, alii scorpion, alii Heraclea, profetae gonos scorpiu, alii ema titanu, alii ura scorpio, Pythagoras parmoron, Aegyptii nisene, Itali vertumnum, alii mulcetram, alii intibum silvaticum. Nascitur ubique locis cultis et mundis et in pratis. Huius herbae divinae ad solis cursum floscelli si vertunt, et cum sol occidit, floscelli se cludeunt; rursum cum sol oritur, floscelli se aperiunt. Facit ad remedia multa."

Determining the extent of *Ex herbis*' originality depends largely on discovering whether the author employed literary sources other than Dioscorides' text. Heinrich Kästner and Charles Singer said that the author used Pliny's *Natural History* and Pseudo-Apuleius' *Herbarius.*[55] Kästner added Galen's *On Simple Medicines.*[56] Max Wellmann rejected Pseudo-Apuleius' *Herbarius*, and his judgment is vindicated by a close comparison of texts.[57] Although Pseudo-Apuleius is earlier, probably dating from the fourth century, the author of *Ex herbis* probably was unaware of the work. Certainly, he wrote about some of the same herbs discussed by Pseudo-Apuleius, but the text, iconography, plant descriptions, and uses do not resemble one another. In attempting to demonstrate Pseudo-Apuleius as a source for *Ex herbis*, Kästner used a text of Pseudo-Apuleius that differs from the critical edition prepared by Ernest Howard and Henry Sigerist.[58] Kästner's claim must be rejected in favor of Wellmann's arguments.

Galen was also not a source for *Ex herbis femininis*. Galen's *On Simple Medicines* was not known to the early Middle Ages in Latin. There exist Latin Pseudo-Galenic works on simples (drugs from a single plant), called *Ad Paternianum* and *De dynamidiis* and known during the early Middle Ages, but these tracts were not sources for *Ex herbis.*[59] Of course, since *Ex herbis*' author knew Greek and was using Dioscorides' Greek text, he could have used Galen's *On Simple Medicines* in Greek, but the new information in *Ex herbis* does not relate to Galen's account.

Although the case for Pliny as a possible source is more difficult to assess, Pliny is an unlikely candidate. The problem is compounded by the fact that both Dioscorides and Pliny drew on a common source, Sextius Niger, for some of their material on herbs.[60] In isolated instances

55. Kästner, "Pseudo-Dioscorides," p. 582; Singer, "Herbal in Antiquity," p. 47.

56. Kästner, "Pseudo-Dioscorides," p. 582.

57. Wellmann, "Dioskurides," p. 1134.

58. Cf. Kästner's text, p. 588, on the herb *buglossa* with the Howald-Sigerist ed. of Pseudo-Apuleius, p. 89, no. 41.

59. *De simplicibus medicamentis ad Paternianum* and *De dynamidiis* (and *Alter liber de dynamidiis, magna ex parte ex Aetio desumptus, plurimis in locis correctus*) as published in Galen, *Omnia, quae extant in Latinum sermonem conversa* . . . , 11 vols. (Basel, 1561) III, 18-36, 79-92.

60. Max Wellmann, "Sextius Niger. Eine Quellenuntersuchung zu Dioscorides," *Hermes, 23* (1888), 530-569; cf. W. H. S. Jones, *Pliny: Natural History,* 10 vols. (Cambridge, Mass.: Harvard University Press, 1951), vols. VI, VII. An example of similarity between Pliny and Dioscorides is seen in their treatment of wild astaphis – Dioscorides, 4.152; Pliny, *Natural History*, 23.13.17-18.

Ex herbis' added material is somewhat similar to the same medicinal uses in Pliny; but the instances are rare and one would expect some similar but coincidental uses. The fact that Pliny lists numerous medicinal uses that *Ex herbis* does not give for the same herb mitigates against the possibility that the author of *Ex herbis* used Pliny. The near certainty is that he did not.

A study of other ancient writers on materia medica and plants fails to identify the source of *Ex herbis*' new material. The author did not use Aetius of Amida, Theophrastus, Gargilius Martialis, Solinus, Oribasius, Caelius Aurelianus, Aretaeus, Pseudo-Hippocrates, Scribonius Largus, Cassius Felix, Quintus Serenus, Alexander of Tralles, Theodorus Priscianus, Marcellus, or the Pseudo-Pliny.[61]

In the absence of evidence to the contrary, I proposed that the author of *Ex herbis femininis* added new material largely from his own medical and botanical knowledge and experience. Certainly his free translations, his interspersing of new material, and his medically and botanically reasonable omissions suggest that he was sufficiently capable and knowledgeable to have composed the new material. Nonetheless,

61. Aetius of Amida, *Libri medicinales*, ed. Alexander Olivieri, Corpus Medicorum Graecorum, 8, 1-2 (Leipzig: B. G. Teubner, 1935-1950); Theophrastus, *Enquiry into Plants*, ed. Arthur Hort, 2 vols. Cambridge, Mass.: Harvard University Press, 1948); Gargilius Martialis, *Medicinae ex oleribus et pomis*, ed. Valentin Rose, in *Plinii secundi* ... (Leipzig, 1875); Oribasius, *Collectionum medicarum reliquiae*, ed. Johannes Raeder, Corpus Medicorum Graecorum, 6, 1, 1 (Leipzig and Berlin: B. G. Teubner, 1924); Pseudo-Oribasius, *Apla urivasii de herbarum virtutem* (*Euporistes*), in vol. VI of *Oeuvres d' Oribase*, ed. C. Bussemaker and Charles Daremberg (Paris, 1876); Pseudo-Hippocrates, *Dynamidia*, ed. Valentin Rose, in Rose, *Anecdota Graeca et Graecolatine* (Berlin, 1870; repr. Amsterdam: Hakkert, 1963); Scribonius Largus, *De compositionibus medicamentorum liber unus* ... (Paris, 1528), and *Compositiones*, ed. G. Helmreich (Leipzig, 1887); Cassius Felix, *De medicina*, ed. Valentin Rose (Leipzig, 1879); Paulus Aegineta, *The Seven Books of* ... , trans. Francis Adams, 3 vols. (London: Sydenhan Society, 1844-1847); Quintus Serenus, *Liber medicinalis*, ed. R. Pépin (Paris: Presses Universitaires de France, 1950); Alexander Trallianus, *Practica* (Venice, 1522), also in *Original-Text und Uebersetzung* ... , ed. Theodor Puschmann, 2 vols. (Vienna: W. Baumüller, 1879); Marcellus, *De medicamentis liber*, in *Ueber Heilmittel*, ed. Max Niederman, 2 vols., Corpus Medicorum Graecorum, 5 (Berlin: Akademie-Verlag, 1968); Caelius Aurelianus, *On Acute Diseases and On Chronic Diseases*, ed. and trans. I. E. Drabkin (Chicago: University of Chicago Press, 1950); Celsus, *De medicina*, ed. and trans. W. G. Spencer, 3 vols. (Cambridge, Mass: Harvard University Press, 1948-1953); Theodorus Priscianus, *Euporiston Libri III*, and Pseudo-Theodorus, *De simplici medicina*, ed. Valentin Rose (Leipzig: B. G. Teubner, 1894).

there is the evidence to the contrary, because often, when he used completely new material for a whole entry, not relying on Dioscorides at all, the style changes. This fact suggests that he was copying from another literary source. This may be a lost herbal or more probably, given the style of listing ailments and then prescriptions, a *receptarius*.[62] We can speculate that the unknown source, or one of the sources, was African, and thus explain the African synonyms that may have confused Hermann Stadler. Newby's suggestion that the African synonyms may have a factual basis would support this possibility. Probably *Ex herbis*' author used an unidentified source or sources in addition to Dioscorides *and* employed his own medical-botanical judgments and information in managing his material.

Since the author relied demonstrably on Dioscorides and perhaps on other sources, can this treatise still be called original? Even if we judge by modern standards, the answer is surely yes. The modifications of information about herbs are not small or trivial contributions. Nowadays, when a researcher "discovers" a "new" curative or beneficial use of some organic or inorganic chemical, the work is hailed as a contribution to knowledge. By the same token, when the author of *Ex herbis* said, for instance, annual mercury (no. 22) relaxes the stomach when taken as an elixir with oil, that statement itself may be a claim for originality, since it was not in the works of his known authority. When a scientist or a historian writes a journal article or book, he does not reauthenticate every item of information he handles; mostly he reviews previous work before advancing the limited new data or consideration. If anyone today were to publish a medical herbal with so many changes in previously conventional factual knowledge, the work would immediately be hailed as a significant contribution. And so it should be with *Ex herbis femininis*.

Beginning with the first manuscript copy in the ninth century, abbreviated chapter headings, called *capitula*, were added to *Ex herbis*. In each chapter heading the herb was named and its medicinal uses indicated. This served as a brief guide for easy reference by a physician.[63] At some time during the twelve century or earlier, as revealed in

62. Some herbals, e.g., Felix Cassius' *De medicina*, Alexander Trallianus' *Practica*, and Scribonius Largus' *Compositiones*, do, however, use the format of listing afflictions and then giving recipes.

63. Florence, Laur. Ms. Plut. 73.41, s. XI, fols. 84-86v; London, Brit. Lib. Ms. Add. 8928, s. X, fols. 62v-65; Vatican, Ms. Barberiniano lat. 160, s. IX, fols. 38-39v.

seven manuscripts, three written in the twelfth century, some unknown author expanded the *capitula* by increasing the textual discussion of the medicinal uses of herbs, while at the same time he dropped eight herbs from the text: "centimorbia," "purpurea," "zamalentition," "zamalentition masculum," "sion," "lycanis," "abrothonum," and "aperine."[64] In rare instances the author added new medicinal uses found neither in the regular text of *Ex herbis* nor in the earlier *capitula.*[65] This work constituted a separate book and always preceded the full version of *Ex herbis*. Wherever and whenever he lived, whoever he was, the unknown author of Book I made a small attempt to make medical knowledge of plants more readily and easily accessible and added some new medical and pharmaceutical discoveries. As contributions go, however, it was small.

The Old English translation of *Ex herbis* is found in three manuscripts, of the ninth, tenth, and eleventh centuries. This translation is still another indication of the adaptiveness of the copyists/translators.[66]

64. Florence, Laur. Ms. Plut. 73. 16, s. XIII, fols. 179r-v; Florence, Strozz. Ms. lat. 73, s. XIII, fols. 39v-44v; London, Brit. Lib. Ms. Harley 1585, s. XII, fols. 79-82v (specifically calling this material a separate book); London, Brit. Lib. Ms. Royal App. 3, s. XIV, fols. 18-20v; London Brit. Lib. Ms. Sloane 1975, s. XII, fols. 49v-52v; Oxford, Bodl. Ms. Ashmole 1462, s. XIII, fols. 61-63v; Vienna, NB Ms. lat. 93, s. XIII, fols. 133-135v. See the description in John M. Riddle, "Dioscorides," *Catalogus, 4* (1980), 132-133.

65. For instance, Book I adds to the entry for the herb camelleon, or pine-thistle, that it sharpens vision ("visum exacuit"). Where *Ex herbis* says of *adiantos*, or maidenhair (no. 14), that "capillos cadentes continent," Book I has "Alopiectias vastat," or "it destroys fox-sickness." Fox-sickness, or fox mange, causes baldness. For *cameleuca*, or common teazle (no. 52), Book I adds to *Ex herbis*' advice on preparation by stating that the herb is beaten into a pliant powder and strained. The italicized words are those added to the text: Tunsa et *pulverem mollissimum redacta* et cribata et in aqua calida data."

66. London, Brit. Lib. Ms. Cotton Vitellius C III, s. XI, fols. 58/14b-74v/11b, 316; London, Brit. Lib. Ms. Harley 585, s. X, fols. 66v/11-101v/114; Ms. Harley 6258b, s. XI, fols. 110a/20a-124/29b; Oxford, Bodl. Ms. Hatton 76, s. XI, fols. 110a/20a-124/29b, published in *Rerum Britannicarum medii aevi scriptoris* (London 1864-1866), vol. I: Cockayne, *Leechdoms, Wortcunning, and Starcraft*, vol. I, and reprinted with Cockayne's Introduction with discussion of texts omitted and Charles Singer's Introduction substituted in London, 1961. The Cotton Vitellius Ms., which was the principal manuscript followed by Cockayne, has many of the leaves for the *Ex herbis* section disarranged in the binding. The correct order is 11-61, 64, 63, 74, 65-67, 62, 71, 70, 68, 73, 72, 69, 75-82. See George T. Flom, "On the Old English Herbal of Apuleius Vitellius C III," *J. Eng. Ger. Phil., 40* (1941), 29-37, esp. p. 32; and the more recent discussion of all manuscripts in de Vriend, *Old English Medicina*, p. xii, which notes the

Chapters numbered from 134 through 175 are mostly derived from *Ex herbis*, often freely translated and modified. Although this paper does not encompass an analysis of the Old English version, I note several examples of changes. To the medical uses of acanthus (no. 1), the Old English version adds that it promotes milk in the breast;[67] for shepherds' pure (no. 16), it changes *Ex herbis*' apparent claim of an abortative quality to that of a provoker of menstruation.[68] New herbs are added.[69] In one case, even where the same herb is in *Ex herbis*, the Old English version has an entirely different text.[70] Plants habitats are modified.[71] In a few cases the author of the Old English version probably had in mind plants different from those in *Ex herbis*, probably because he was treating a few herbs prevalent in the British Isles but not well-known in southern Europe, where most of *Ex herbis*' plants came from.

The influence *Ex herbis* diminished in the high and late Middle Ages. The enlarged Alphabetical Dioscorides Latin Recension, providing some competition, was produced by the late eleventh or early twelfth century.[72] More competitive yet were the *Circa instans* of Matthews Platearius and the *Herbal* of Macer. *Ex herbis* was still used, but mainly as a resource authority for new herbals. Copyists occasionally lifted entire chapters together with the illustrations for their herbals when *Ex herbis* had information that fit some particular need. Simon of Genoa (flourished in the late thirteenth century), referred to *Ex herbis* as "librum antiquum istoriatum."[73] By the late Middle Ages *Ex herbis*

---

disarrangement. The most recent study of Cotton Vitellius C III is admirably done by Linda E. Voigts, "A New Look at a Manuscript Containing the Old English Translation of the *Herbarium Apulei*," *Manuscripta, 20* (1976), 40-60, where Voigts accepts Ker's eleventh-century dating and adds new evidence; see also Voigts' new study, "One Anglo-Saxon View of the Classical Gods," *Stud. Icon., 3* (1977), 3-16. I am indebted to Dr. Voigts for her assistance in helping me with the Old English Texts.

67. No. 161, I, 288-290, Cockayne ed.

68. No. 150, I, 276-6, Cockayne ed.

69. E.g., nos. 140, 146, and 151.

70. Cf. no. 35 in *Ex herbis* with Old English no. 137, I, 254-257, Cockayne ed.

71. Cf. no. 11 in *Ex herbis* with Old English no. 139, I, 257-258, Cockayne ed.

72. John M. Riddle, "The Latin Alphabetical Dioscorides," *Proc. 13th Int. Cong. Hist. Sci.* (Moscow, 1974), secs. 3, 4, pp. 204-209.

73. Montpellier, École de médicine Ms. H 127, s. XV, fols. 101v-111: "Incipit liber Apuliensis Platonis De herbis femininis quem Simon Januensis vocat Librum Antiquum Istoriatum." The text is Pseudo-Dioscorides' *Ex herbis*. The rubric and colophon in the Montpellier Ms. are the same.

femininis was virtually forgotten, but its influence surpassed its memory. It is a good example of early medieval medical literature in which an unknown author, appropriating the name of a classical authority, sought to record in pictures and words the herbs of the field and their uses for man. The effort was important, influential, and meritorious. Flaws there are, but fewer than previously noted. There is no reason to relegate this work to the margins of history as an example of poor botany and poor medicine in a poor age that cared about neither field. The author of *Ex herbis femininis* wrote a praiseworthy herbal.

Acknowledgments

I gratefully acknowledge the many helpful suggestions of Dr. Linda Voigts, Dr. Karen Reeds, and Professor John Scarborough, who read drafts of this paper. Their knowledge and assistance were invaluable. Also, I am grateful to Dr. Gordon Newby, whose extensive reply to a question regarding African languages is quoted in this article. An earlier version of this article was read before the American Society for the History of Science, Philadelphia, December 1976.

Key

André	Jacques André, *Lexique des termes de botaniques en latin* (Paris: C. Klincksieck, 1956)
Bierbaumer	Peter Bierbaumer, *Der botanische Wortschatz des Altenglischen*, Part 2, *Lacnunga, Herbarium Apuleii, Peri Didaxeon* (Frankfurt: Peter Lang, 1976)
Carnoy	Albert Carnoy, *Dictionnaire, étymologique des noms grecs de plantes* (Louvain: Publications Unviersitaries, 1959)
Cockayne	Thomas Oswald Cockayne, *Leechdoms, Wortcunning, and Starcraft of Early England*, 3 vols. (London 1864-1866; repr. London: Holland Press, 1961)
Daubeny	Charles Daubeny, *Lectures on Roman Husbandry* (Oxford, 1857)
D.	Dioscorides, *De materia medica libri quinque*, ed. Max Wellmann, 3 vols. (Berlin: Weidmann, 1958)
Font y Quer	P. Font y Quer, *Plantas medicinales el Dioscórides renovado* (Barcelona: Editorial Labor, 1962)
Grieves	Maud Grieves, *A Modern Herbal* (New York: Dover, 1971)
Gunther	Robert T. Gunther, *The Greek Herbal of Dioscorides* (New York: Hafner, 1959)
Hort	Arthur Hort, *Theophrastus: Enquiry into Plants*, 2 vols. (Cambridge Mass.: Harvard University Press, 1949)
Jones	W. H. S. Jones, *Pliny: Natural History*, in 10 vols., vols. 6-7 (Cambridge, Mass.: Harvard University Press, 1951, 1956)
Kraemer	Henry Kraemer, *A Textbook of Botany and Pharmacognosy*, 4th ed. (Phildadelphia: Lippincott, 1910)
Leek	Sybil Leek, *Herbs, Medicine, and Mysticism* (Chicago: H. Regnery, 1975)
Polunin	Oleg Polunin, *Flowers of Europe* (London: Oxford University Press, 1969)
Pseudo-Apuleius	*Herbarius*, in *Antonii Musae . . . Pseudo-Apulei . . .*, ed. Ernest Howald and H. E. Sigerist, Corpus Medicorum Latinorum, vol. IV (Leipzig: B. G. Teubner, 1927)
Pushmann	Theodor Puschmann, *Alexander von Trallus*, 2 vols. (Vienna: W. Braumüller, 1879)
Schneider	Wolfgang Schneider, *Lexikon zur Arzneimittelgeschichte*, 7 vols., vol. V in 3 parts., *Pflanzliche Drogen* (Frankfurt: Govi-Verlag, 1974)

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
1. Acantha leuca; hecynum	3.12: ἄκανθα λευκή (citations to Wellmann ed.)	*Crataegus oxyacantha* L., *Crataegus monogyna* Jacq.	Hawthorn, whitethorn, etc. (Grieves, p. 385; Polunin, no. 461)	Beowyrt, or becwort no. 154 (Bierbaumer, 2, p. 11)
	Bierbaumer believes the Old English text comes from Dios., 3.19, which concerns *Acanthus mollis* L., or bear's breech. The Old English text, however, has some material, e.g., a use for lung disease, not found in either *Ex herbis* or Dioscorides.			
2. Buglossos	4.127: βούλγωσσον	*Borago officinalis* L. (Font y Quer, no. 389); *Lingua bubula* (André, p. 188)	Burrage (Grieves, pp. 119-20)	
3. Acantus	3.17: ἄκανθος	*Acanthus mollis* L. (Font y Quer, no. 99a, or, possibly, *Acanthus spinosus* L. (Schneider, V, 1, 34-35)	Bear's breech (*A. Mollis*) or spiny bear's breech (*A. Mollis*) (Polunin, nos. 1266-1267)	
4. Helylosfacos; Salvia	3.33: ἑλελίσφακον	*Salvia officinalis* L. (Font y Quer, no. 474); *Salvia triloba* (Poulnin, no. 1143)	Common sage (Grieves, pp. 700-705)	
5. Cyminum	3.60: κύμινον ἄγριον	*Cuminum cyminum* L. (Font y Quer, no. 342; Schneider, V, 1, 398-399) *Cuminum agreste* (André, p. 180)	Cumin (Grieves, pp. 242-243)	Cymen, no. 155 (Bierbaumer, pp. 3, 31)
6. Camelleon	3.8: χαμαιλέωη λευκός	*Atractylis gummifera* (Font y Quer, no. 599; cf. Carnoy, p. 75); *Chamaeleon albus* (André, p. 84)	Pine-thistle (Polunin, no. 1471)	
	Hort (II, 483) identifies camelleon as *Atractylis gummifera*. Cockayne (I, 283) says that in the Old English version what is probably described is wolfs' teazle – *Carlina acaulis* or *Acarna gummifera*. Jones (Pliny, 22.21.45) agrees with Hort's identification in translating Pliny. The description in *Ex herbis* might also fit European ground pine or yellow bugle (*Ajuga chamaepitys*, Schreb.) – see Grieves, p. 141. *Ex herbis* modifies Dioscorides' plant description.			
7. Erpullos	3.38: ἕρπυλλος	*Thymus serpyllum* L. (Font y Quer, no. 493; Schneider, V, 3, 340; Carnoy, pp. 143-144)	Wild thyme (Grieves, pp. 813-815; Polunin, no. 1164)	

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
8. Camedrios	3.98: χαμαίρωψ	*Teucrium chamaedrys* L. (Font y Quer, no. 445; André, pp. 85, 322); *Buisson epineux* (Carnoy, p. 76)	Wall germander (Grieves, p. 760)	
	It is possibly *Veronica chamaedrys* L. or speedwell, germander; Polunin, no. 1228.			
9. Polygonos	4.4: πολύγονον ἄρρεν	*Polygonum aviculare* L. (Font y Quer, no. 71; Carnoy, p. 221; André, p. 257)	Knotgrass (Grieves, pp. 457-458; Polunin, no. 80)	
	Dioscorides has two chapters: 4.4, πολύγονον ἄρρεη, which he says is male, and 4.5, πολύλονον θῆλυ, which is female. *Ex herbis* uses the description of the male plant, although D. says that both plants have about the same medicinal virtues. D. says the plant has many seeds, and therefore it is called male. *Ex herbis* omits the statements of D. that the plant is male but does note that it has many seeds. Pliny (27.41.113-117: *sanguinaria*) says there are four kinds, two being male and female.			
10. Samsucon	3.39: σάμψουχον	*Origanum majorana* L. (Font y Quer, no. 491; Carnoy, p. 234; Schneider, V, 2, 283-284)	Sweet marjoram (Grieves, pp. 519-521)	
	There is also marjoram (*Origanum vulgare* L.), which may be the plant described, but both species have the same medicinal action.			
11. Cestros, sive Stergestros vel Sempervivum (in various mss)	4.88: ἀειζῳον μέλα	*Sempervivum tectorum* L. (Font y Quer, no. 183; Carnoy, p. 11; André, p. 289)	Houseleek (Grieves, pp. 422-423; Polunin, no. 383)	Aizos (?), no. 139
	D. has "larger Aeizóon" (4.88) and "smaller Aeizóon" (4.89), and Sprengler believes the larger one is *Sempervivum arboreum* and the smaller *S. tectorum*. Houseleek is suggested in the *Ex herbis* description. See also no. 33 below. *Cestros*, presumably from κέστρον (D., 4.1), means betony (Pliny, 26.46.84), but the author of *Ex herbis* took the text and description from D.'s entry ἀειζωον μέγα, which refers to houseleek. The Old English text refers to *Aizus minor* (see *Ex herbis*, no. 33) and seems to distinguish it from aizos without further description.			
12. Aristolochia	3.4: ἀριστολοχεία			
	D. says there are three kinds: female (round leaves, sweet-smelling, etc.), male (round leaves but longer ones, purple flowers, etc.), and *Aristolochis clematitis*. *Ex herbis* says there are two kinds, male and female, thereby omitting *A. clematitis*. Pliny (25.54.97-98) names four kinds: male, female, clematis, and pistolochia. Font y Quer (pp. 193-197) says that there are around 400 species of plants in the genus of *Aristolochia*. For D., he distinguishes: 101: *Aristolochia rotunda* L; 102: *A. longa* L; 104: *A. pistolochia* L; 105: *A. baetica*. What *Ex herbis* describes is uncertain because the description is even sketchier than D.'s text, but it would appear to be Font y Quer's no. 101 as the female and no. 102 as the male. The drawing in Vienna Ms. 93 appears closest to *A. longa*, or the male variety; cf. Carnoy, p. 37, and André, pp. 40-41.			
13. Sticas	3.26: στοιχάς	*Lavandula stoechas* L. (Font y Quer, no. 454; André, p. 304; Carnoy, p. 354)	French lavender (Grieves, pp. 468-473; Polunin, no. 1110)	Stecas, no. 149
14. Adiantos; polytichos; callistrichos	4.134: ἀδίαντον	*Adiantum capillus-Veneris* L. (Font y Quer, no. 34; André, p. 18; Carnoy, p.9)	Maidenhair, or maiden spleenwort (Kraemer, pp. 61ff; Leek, p. 219)	
15. Mandragora	4.75: μανδραγόρας	(?) *Mandragora officinarum* L.	Mandrake	
	D. says there is a female and a male variety but also a third kind called *morion*. The text appears to give the medicinal virtues of the male variety. *Ex herbis* gives the male and female varieties and says both have the same medicinal action. Font y Quer (pp. 590-595) and André (p. 199) say that the male and female varieties described in D. may be *M. officinarum* and *M. vernalis* or *M. autumnalis*. Grieves (pp. 510-512) reports that the mandrake contains two mydriatic alkaloids and is therefore akin to belladonna and identical with			

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
	atropine, or hyoscyamine. Polunin (no. 1185) reports *M. officinarum* as having a European habit. There may be some confusion between *M. officinarum* and *M. autumnalis*.			
16. Thlaspis; mia	2.156: θλάσπι	*Thapsia garganica* L. (Font y Quer, no. 362) *Capsella bursa pastoria*	Shepherd's purse (Grieves, pp. 738-739; Polunin, no. 340)	Lombes cyrse, no. 150 (Bierbaumer, p. 75)
	André (p. 315) and Carnoy (p. 264) identify D.'s *thlaspis* with *Capsella bursa pastoris*. *Ex herbis* gives *mia*, as a synonym, and André (p. 208) believes *mia* in *The Old Latin Dioscorides* (2.156) is probably μυῖτις. Bierbaumer (p. 75) identifies the Old English "Lombes cyrse" as (1) *Cardamine hirsuta* L.? (2) *Capsella bursa-pastoris* L., or shepherd purse, or (3) *Thlaspi arvense* L., or field pennycress.			
17. Sisimbrium	2.128: σισύμβριον	*Sisymbrium sophia* L. (Font y Quer, no. 166) *Nasturtium offinale* R. Br. (Carnoy, p. 296) *Mentha sativa* (André, p. 296; Carnoy, p. 246)	Flixweed (Polunin, no. 288) Watercress (Polunin, no. 307) Wild mint	
	The picture in Vienna Ms. 93 suggests that what *Ex herbis* is describing is *Mentha sativa*, or wild mint. Flixweed is in the mustard family, but according to Grieves (p. 570) has almost the same medicinal action as wild mint. Carnoy (p. 246) believes that *sisimbrium* applies to a variety of aquatic plants, specifically *Mentha aquatica* and/or *Nasturtium officinale*.			
18. Celedonie	2.180: χελιδόνιον μέγα	*Chelidonium majus* L. (Font y Quer, no. 135, cf. André, p. 86, who has a broader list of possibilities, but the pictures in *Ex herbis* seem to go with greater celandine)	Greater celandine, or common celandine (Grieves, pp. 178-179; Polunin, no. 274)	
19. Camemelos	3.137: ἀνθεμίς	*Anthemis arvensis* (?) (Font y Quer, no. 575, cf. André, p. 84; Carnoy, p. 75)	Mayweed (Grieves, p. 523); corn chamomile (Polunin, no. 1411)	
	D. says that there are three kinds. The description of the first approximates *A. arvensis*, and the other two are probably *A. tinctoria* and *A. cotula*, all varieties of mayweed. The *Ex herbis* description is taken from D.'s first type. André and Carnoy say the D. entry could refer to a variety of plants.			
20. Sideritis	4.33: σιδηρῖτις	*Sideritis hirsuta* L. (?) (Font y Quer, nos. 458, 460)	Heracules panaces (?) Polunin, no. 1115; cf. no. 1114)	
	Daubeny (p. 313) believes D.'s entry to be *Sideritis romana*, Gunther (p. 428) has *Sideritis remota*. The illustration in Vienna Ms. 93 is closest to *Sideritis hirsuta*. André (p. 292) identifies D.'s entry with millefolium and Carnoy (p. 243) says the entry particularly applies to *Sideritis romana*.			
21. Flommos	4.103: θλόμος	*Verbascum thapsus* L., but possibly *V. sinuatum* (Font y Quer, no. 416; cf. André, pp. 326-327)	Great mullein / golden rod / foxglove / Aaron's rod, etc. (Grieves, p. 562; Polunin, no. 1193)	
	There are about 210 species, and certainty is therefore difficult.			
22. Lynozostis; lingostes	4.189: λωζωστις	*Mercurialis annua* L. (Font y Quer, no. 95) *Mercurialis perennis* L. (André, p. 188)	Annual mercury (Grieves p. 530; Polunin, no. 667) Dogs mercury (Polunin, no. 666)	
	Both D. and *Ex herbis* speak of a male and a female variety.			
23. Antirenon	4.130: ἀντιρρωον	*Antirrhinum majus* L. (Font y Quer, no. 419); *Antirrhinum orontium* L. (André, p. 33)	Snapdragon (Grieves, p. 746; Polunin, no. 1197); Weasel's snout (Polunin, no. 1199)	

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
24. Britannica	4.2: βρεττανική	Veronica chamaedrys (?)	Germander speedwell (?) (Polunin, no. 1228)	
	The *Notha*, a later addendum to some Greek D.'s Mss, say that the British plant is the same as vettonica (ρυμαϊα βεττονίκαμ), which Paul of Aegina (7.3) has as Paul's betony and which is listed by Grieves (p. 759) as *Veronica chamaedrys*, or Germander speedwell. Font y Quer has no identification. *Ex herbis* has: "Brittanica sive damasonion." Pliny (25.77.124) says *damasonion* is the same as *lyron*, which is today called purple loosestrife (*Lythrum salicaria* – Grieves, p. 496). The description given by D. seems closest to *Veronica chamaedrys*. André (p. 58) suggests it might be a kind of *rumex*, whereas Carnoy (pp. 49– 50) associates it with betony. The picture in *Ex herbis* corresponds to Germander's speedwell.			
25. Psillios	4.69: ψύλλιον	*Plantago psyllium* L. (Font y Quer, no. 507; André, p. 263)	Psyllium plantain (Grieves, pp. 643-644)	No. 169
26. Melena	4.183: ἄμπελος μέλαινα	*Tamus communis* L. (Font y Quer, no. 653); *Tamus viridis* (Carnoy, p. 23)	Poison black bryony / blackeye root (Grieves, pp. 130-131; Polunin, no. 1674)	
27. Tribulenta	4.15: τρίβολος	*Tribulus terrestris* L. (Font y Quer, no. 300)	Land caltrop / Small caltrops / Maltese cross (Polunin, no. 655)	Gorst, no. 142 (Bierbaumer, p. 54)
	D. and Pliny (22.13.17) say that there are two kinds – one that grows on land and another in water, probably water caltrop (*Traba natans*). *Ex herbis* says that there are two kinds: "one which is found in gardens, the other is wild." *Ex herbis*' description seems to be only of land caltrop; why the author says that there are to kinds is unclear. The Old English version says *tribulus* is gorst.			
28. Coniza	3.121: κόνυζα	*Inula conyza DC* (Font y Quer, no. 559)	Ploughman's spikenard / great fleabane / and little fleabane (Grieves, pp. 760-761; Polunin, no. 1387)	Conize,
		Inula vis cosa for male and *graveolen* for female variety (André, p. 100)		
	D. describes three kinds, two of which Gunther (p. 366) lists as *Inula viscosa* and *I. saxatilits*. *Ex herbis* describes two kinds, which are probably great fleabane and little fleabane.			
29. Strygnos	4.70: στρύχνον κηπαῖον	*Solanum nigrum* L. (Font y Quer, no. 407; André, p. 305; Carnoy, p. 255)	Black nightshade (Grieves, pp. 582-583; Polunin, no. 1182)	Foxglove (?), no. 144 (Bierbaumer, p. 49)
	A synonym given by *Ex herbis* is *manicos*. D. has an entry (4.73) that the Old English version took to mean foxglove. The entry of στρύχνον μανικόν in *Ex herbis* is clearly from D., 4.70, while the Old English seems to be giving the medicinal uses for foxglove, *Digitalis purpurea*.			
30. Bustalmon	3.139: βούφθαλμον	*Anthemis tinctoria* L. (Schneider, V, 1, 102)	Yellow chamomile (Polunin, no. 1409)	Buoptalmon, no. 141
		Anthemis valentina (?) = *Chrysanthemum coronarium* L. (André, p. 61)	Mayweed (?)	
	Pliny (25.102.160) says *buphthalmos* is a kind of *aizoōm*, or houseleek. *Buphthalmos* means "bull's eye." There is a plant today called bull's eye, but it is marsh marigold (*Clatha paulstris*). The description in *Ex herbis* does not fit (see Grieves, p. 519). Probably, *buphtholomos* is a variety of *anthemis*, or mayweed, but Dioscorides, *Ex herbis*, and the Old English Text are unclear as to the plant described.			

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
31. Isfieritis				Spreritis, no. 138
	Identification is uncertain, this being the only plant in *Ex herbis* for which a corresponding chapter in D. cannot be found. The Old English version's entry (Cockayne, I, 256-257) identifies it as D.'s ἀναγαλλίς (2.178). The Old English word is *spreritis*, of which Cockayne said: "Σ πυρίτις is a medieval synonym of the ἀνάγαλλις ἡ φοινικῆ, the scarlet pimpernel," on the basis of marginal notes to D., 2.209. The text is *Ex herbis* does not relate to the D. entry. There are two drawings of *anagallis* found in the Greek Dioscorides, Vienna Ms. Gr. 1, fols. 39-40, but despite some similarities there is a different leaf arrangement on the stems, when one compares the drawings in *Ex herbis* to those in Vienna, Ms. 93, and Florence, Laur. Ms. Plut. 41.73. Further, I could find no such synonym as that referred to by Cockayne in Vienna, Ms. Gr. 1, fol. 40. André (p. 299; cf. p. 66) lists *spieritis* in *Ex herbis* (no. 31) as possibly "caltha" (*Calendula arvensis L.*), or marigold, but the illustrations in the *Ex herbis*' manuscripts do not resemble marigold. André cross-lists *spieritis* with caltha and cites the entry on λευκάϊον in George Goetz, *Corpus Glossariorum Latinorum*, 7 vols. (Leipzig, 1888-1923), index, VI, 170, but Goetz does not identify *spieritis* with caltha (*caltha*, however = λευκάϊον). Bierbaumer does not identify the Old English herb *spreritis*. The picture in *Ex herbis* has two different structures of flowers, which makes identification even more difficult.			
32. Hyppypres	4.47: ἑτέρα ἵππουρις	*Equisetum telmateia* (Font y Quer, no. 23; André, p. 163; Carnoy, p. 146)	Horsetails	
	Gunther (p. 438) believes that D.'s horsetails may be either *Equisetum sylvaticum* or *E. fluviatile*. Grieves (pp. 419-421) reports four species of horsetails common in Europe.			
33. Aizos	4.89: ἀειζων το μικρόν and	*Sempervivum tectorum* L. (Font y Quer, no. 183; cf. André, p. 289; Carnoy, p. 11)	Houseleek (Polunin, no. 383)	Aizos minor, no. 139
	4.88: ἀεζων τὸ μέγα			
	See no. 11 above. Gunther (p. 487), lists *Sempervivum ochroleucum*; Cockayne (I, 257) gives *S. sediforme*, for Old English descriptions. *Ex herbis* modified D.'s description and combines two chapters in D. (89 and 88), "major" and "minor" houseleeks, but D. says the medicinal virtues of both are the same.			
34. Tytimallos	4.164: τιθυμάλλου	*Daphne gnidium* L.	Mediterranean mezereon (Polunin, no. 758)	
	εἴδη ἑπτά	or *Euphorbia characias* (Font y Quer, pp. 388-389; cf. André, pp. 317-318; Carnoy, p. 268)	Large Mediterranean spurge (Polunin, no. 678)	
35. Eliotropios	[4.190: ἡλιοτρόπιον τὸ μέγα]	*Taraxcum offinale*	Weber dandelion	[Sigilhweorfa. no. 137 – text not related to *Ex herbis*] (Bierbaumer, p. 104)
	[4.191: ἡλιοτρόπιον τὸ μικόν]	*Cichorium intybus* L.	Chicory (Polunin, no. 1512)	
	Ex herbis has two entries, no. 35 and 50, but neither correspond to D.'s chapters. Moreover, the pictures of the two plants in *Ex herbis* are different. And the drawings of plant 35 in *Ex herbis* show an impossible arrangement of leaves. The drawings show large, broad, serrated leaves coming from a fleshy rhizome, while from the nodes come stems from which branch narrow, long, smooth-edged leaves in alternate arrangement and small flowers on stems, some of which branch from leaf nodes while others come from stems without foliation. Font y Quer (nos. 335 and 921) identifies the two entries in D. as *Heliotropium europaeum* (heliotrope, no. 1045 in Polunin) and *Chrozophora tinctoria* (turnsole, no. 665 in Polunin), but these appear impossible in *Ex herbis*. The Old English entry *sigilhweorfa*, with synonym *heliotropus*, does not relate textually to either *Ex herbis* or D. Bierbaumer (p. 104) lists for *sigilhweorfa* five possibilities: *Calendula officinalis* L.; *Cichorium intybus* L.; *Taraxacum officinale* L.; *Hypochoeris glaba* L.; or, least likely, *Heliotropium*			

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
	europaeum L. Of these, the picture in *Ex herbis* is closest to *Taraxacum officinale*, or dandelion, with the exception of the troublesome smooth long leaves on some stems. The medicinal usages listed also make this identification more likely. The *Ex herbis* text has: "ideo alii helioscopion vocant, Romani intybut sylvaticum." *Cichorium intybus* is chicory. Dandelion is sometimes substituted for chicory in coffee. It would appear that *Ex herbis* refers here to dandelion and possibly also to chicory.			
36. Scolymbos	3.14: σκόλυμος	*Scolymus hispanicus* L. (Font y Quer, no. 615; André, pp. 285-286; Carnoy, p. 238); or, *S. maculatus* (André, pp. 285-286)	Golden thistle / Spanish oyster plant (Polunin, no. 1510)	Scolimbos, no. 157
37. Achilleia	4.36: Ἀχίλλειος	*Cynara cardunculus* L.	Cardoon (Polunin, no. 1491)	Achillea, no. 175
	The *Notha* (D. 4, 36 RV) gives a synonym as μιλλεφόλιωυμ, or *millefolium*, and the drawing in Vienna, Ms. Gr. 1, suggests *Achillea millefolium* L. (Font y Quer, no. 577), which is also D.'s 4.114: μύριοφυλλον (see Carnoy, p. 5). The drawing in *Ex herbis*, esp. in Vienna Ms. 93, suggests artichoke. *Ex herbis* may be describing *Scolymus cardunculus*, or Cardoon artichoke. The drawing in *Ex herbis* is close to Pseudo-Apuleius' no. 89, *Millefolium*. Grieves (p. 863) and Polunin (no. 1417) identify *Achillea millefolium*, or yarrow or milfoil. The Old English version has *Achillea*, which Cockayne suggests may be *Archillea magna*, *A. tanacetifolia*, *A. abtotanifolie*, or *A. tomentosa*. André (p. 15) identifies *Ex herbis' Achilleia* with *millefolium*. Polunin (no. 1491) distinguishes *Cynara cardunculus*, or cardoon, from *C. scolymus*, or globe artichoke, by the fact that globe artichoke is unknown in the wild.			
38. Stafis agria	4.152: σταφις ἀγρία	*Delphinium staphisagria* L. (Font y Quer, no. 117; André, p. 303; Carnoy, p. 252)	Stavesacre / lousewort (Leek, p. 220; Polunin, no. 212)	Stavis agria, no. 171
39. Cameleia; turbiscon	4.171: χαμελαία	*Daphne oleoides* (Gunther, p. 572)	Ground olive (Polunin, no. 757)	
		Daphne gnidium L. (André, p. 315)	Mediterranean mezereon (Polunin, no. 758)	
	Although the picture in *Ex herbis* bears little resemblance to the *Daphne* family, the text says the plant has a fruit like an olive. This probably is the ground olive.			
40. Ficios; hecios; alcidiabios	4.27: ἔχιον	*Echium vulgare* L. (Font y Quer, no. 398; cf. André, p. 123; Carnoy, p. 115)	Viper's bugloss (Polunin, no. 1082)	Acius, no. 161
	Cockayne (I, 288-291) gives the Old English version plant as *Echium rubrum*.			
41. Splenios	3.134: ἄσπληνος	*Ceterach officinarum* Candolle (Font y Quer, no. 32; André, p. 45; Carnoy, p. 41) *Asplenium ceterach* L. (Grieves, pp. 302-303)	Spleewort, common	
	Ceterach is not in Polunin, but is listed in H. Gilbert Carter, *Glossary of The British Flora* (Cambridge, 1950), p. 18.			
42. Titmallos	4.164: τιθύμαλλον	See no. 34.		
43. Glisirisa	3.5: γλυκύρριζα	*Glycyrrhiza glabra* L. (Font y Quer, no. 251; Carnoy, p. 132)	Licorice (Grieves, pp. 487-492; Polunin, no. 536)	Glycyridam, no. 145
44. Bulbus rufus	2.170: βολβὸς ἐδώδιμος	*Hyacinthus comosus*, Sibthrop or *Muscari comosum* L. (Gunther, p. 211; Cockayne I, 321; André, p. 60)	Red bulbs or Tassel hyacinth (Polunin, no. 1645)	Bulbus, no. 184
45. Dracontea	2.166: δρακόντιον	*Arisarum vulgare* L. (Font y Quer, no. 677), or	Friar's cowl (Polunin, no. 1821)	

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
		Arum dracunculus L. (Font y Quer, no. 677; André, p. 120)	Arum arrowroot	
46. Moecon	4.64: μήκων	*Papaver somniferum* L.	White poppy	
		Papaver rhoeas L. (Font y Quer, nos. 132, 133: Carnoy, p. 172; cf. André, p. 202)	Red poppy or corn poppy (Grieves, p. 651; Polunin, nos. 264, 265)	
47. Colocinthios agria	4.176: κολόκυνθα ἀγρία	*Citrullus colocynthis* Schrader, or	Bitter apple (Grieves, pp. 45-50; Polunin, no. 812)	
		Cucurbitam silvestrem, or *C. capprariam*, or *C. agrestis* (Font y Quer, no. 547; André, p. 97)	Colocynth Pulp Bitter cucumber (Grieves, pp. 49-50)	
48. Ypericon; corion	3.154: ὑπερικόν	*Hypericum perforatum* L.; *H. coris*, *H. crispum*; or *H. barbatum* (Font y Quer, pp. 292-294; Cockayne, I, p. 277; Gunther, p. 394) *H. Crispum* André, p. 166)	Common St. John's wort (Grieves, p. 707; Polunin, no. 768)	Hypericon, no. 152 (Bierbaumer, p. 143)
49. Lapatium	2.114: λαπάθου	*Rumex patienta* (Gunther, p. 151)	Sorrel	
	Font y Quer (no. 601) identifies D.'s entry as *Arctium lappa*, but the description fits sorrel more closely. *Ex herbis* and D. said there are four kinds: possibly, *Rumex patienta*, *Oxyria reniformis* (mountian sorrel), *Rumex acetosa* (common sorrel) and *Oxalis acetosella* (wood sorrel). See André, pp. 178-179; Carnoy, p. 157. It is difficult to judge the species, if any, that *Ex herbis* intended. The drawing is closest to *Rumex sanquineus*, which is widespread in Europe. See Polunin, no. 98.			
50. Heliotropium	See no. 35, above.			
51. Arnoglossa	2.126: ἀρνόγλωσσον	*Plantago major* L. or *P. lagopus* (Font y Quer, no. 511; cf. André, p. 41, who identifies it only as plantain).	Common plantain, or snakeweed; or water plantain (Grieves, pp. 640-642)	
		Alisma plantago-aquatica L.		
	D. says that there are two kinds, one larger and the other smaller. Gunther (p. 165) identifies the smaller as *Plantago lagopus*, while Font y Quer identifies the larger as *P. major*. *Ex herbis* discusses only one kind, and says it grows in wet places, a comment not recorded in D. This is more descriptive of water plantain (*Alisma plantago*); see Grieves, p. 645, and Polunin, nos. 1294, 1291, and 1560.			
52. Cameleuca	3.8: χαμαιλέων λευκός	*Dipsacus fullonum* L., *D. laciniatus* L., *D. silvestris*, *Atractylis gummifera* (Font y Quer, pp. 836-837; Jones, VI, 323; Gunther, p. 243; André, p. 84, gives *A. gummifera*)	Common teasle or (Polunin, nos. 1318-1319), or Pine thistle (?)	Wolfes camb, no. 156 (Bierbaumer, p. 135)
	Ex herbis' cameleuca may not be the same plant as D. was describing. The picture in Vienna, Ms. 93, does not appear to be *Atractylis gummifera*, and it resembles teasle, but *Ex herbis* gives no plant description. The Old English version gives a description and a picture that do not correspond to D.'s. Cockayne (I, 283) says the Old English version is probably describing wolf's teasle or common teasle. André identifies *Ex herbis*' entry as chamaccissos = *glechoma hederacea*; see Carnoy, p. 74.			
53. Scylla	2.171: σκίλλα	*Scilla maritima* L. (André, p. 284)	Sea squill (Grieves, pp. 766-769; Polunin, no. 1630)	

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
		Urginea maritima Baker; (Font y Quer, no. 639)		
54. Erigion	3.21: ἠρύγγη	*Eryngium campestre* L. or *E. maritimum* L. (Font y Quer, nos. 334-335) André, p. 129; Carnoy, p. 123)	Sea holly (Grieves, pp. 407-409)	Eryngius, no. 173 (Bierbaumer, p. 142)
55. Iera	4.60: ἱερὰ βοτάνη	*Verbena officinalis* L. (Font y Quer, no. 438; cf. André, p. 162)	Vervain (Grieves, pp. 431-433; Polunin, no. 1084)	
	4.60RV: περιστερεων ὑπνος			
56. Strutios	2.163: στρούθιον	*Saponaria officinalis* L. (Font y Quer, no. 90; cf. André, p. 305; Carnoy, p. 254)	Soapwort (Grieves, p. 748; Polunin, no. 181)	
57. Delfion	[3.73: δελφίνιον; *Ex herbis* text unrelated]	*Delphinium consolida*	Field larkspur (Grieves, p. 464)	Delfinion, no. 160 (Bierbaumer, p. 142)
	Gunther (p. 316) says D.'s entry is *Delphinium peregrinum* L. and *D. consolida*, but the picture in *Ex herbis* indicates *D. consolida*. The drawing in Vienna, Ms. Gr. 1, does not resemble the drawings in various *Ex herbis* mss. André identifies *Ex herbis*' entry as *Bucinus, B. minor* (p. 117) and Cockayne (p. 289) gives *Delphinium consolida*.			
58. Centimorbia	[4.3: λυσιμάχειο; *Ex herbis* unrelated]	*Lysimachia vulgaris* L.	Yellow loosestrife (Polunin, no. 963)	Centimorbia (Bierbaumer, p. 141), no. 162
		L. nummerleria	Moneywort, or creeping Jenny (Polunin, no. 96)	
	Ex herbis' text and picture (cf. Vienna, Ms. Gr. 1) and various *Ex herbis* mss. do not resemble D.'s. Font y Quer (no. 368) and Gunther (p. 400) say D.'s entry is *Lysimachia vulgaris*. The drawings are closest to *L. nummuleria* (see Cockayne, I, 291), but the description of the habitat does not fit. *Ex herbis* says *Centimorbia* is "found in cultivated places and rocky places, that is, in mountains and fields." According to Grieves (pp. 549-550, 497-498) *L. nummuleria*, or moneywort, grows in damp places and *L. vulgaris*, or yellow loosestrife, beside streams. André (p. 80) identifies *Ex herbis*' entry as *L. nummuleria*. The plant is in *Ex herbis*, and its name may be new and introduced by *Ex herbis*.			
59. Viola; viola aurosa	3.123: λευκόιον γνώριμον	*Cheiranthus cheiri* L. (Font y Quer, no. 150)	Wall flower (Polunin, no. 299)	Bânwyrt, nos. 165 and 166 (Bierbaumer, p. 8)
		Viola lutea (André, pp. 330-331)	Mountain pansy (Polunin, no. 785)	
	The picture in *Ex herbis* seems to be *Cheiranthus cheiri*, but the text says there are three kinds, with purple, white, and honey-colored flowers, and the best kind for medicine is the yellow, which is wall flower. Perhaps another kind is *Viola odorata*, but it is also *Ex herbis*' no. 65. Bierbaumer identifies four plants described in the Old English Text: (1) *Bellis perennis* L., (2) *Centaurium umbellatum* Gilibert, (3) *Symphytum officinale* L., (4) a *viola*.			
60. Capparra	[2.173: κάππαρις; *Ex herbis* unrelated]	*Capparis spinosa* L. (Font y Quer, no. 137, André, p. 70)	Caper (Polunin, no 283)	Wudubend, no. 172 (Bierbaumer, p. 130)
		Lonicera periclymenum L.	Honeysuckle (Polunin, no. 1304)	
	The drawing in *Ex herbis* is close to *Capparis spinosa*, but the text is completely unrelated to D.'s. The common caper, or wood caper, is a different plant described in D.'s 4.166 as spurge. Bierbaumer identifies the Old English woodbind as *Lonicera periclymenum* L. The picture in *Ex herbis* resembles both caper and honeysuckle.			

Ex herbis	Dioscorides	Probable scientific name	Common name	Old English (nos. to Cockayne ed.)
61. Ancusa	[4.23: ἄγχουσα; *Ex herbis* text unrelated]	*Anchusa tinctoria* L., or *Anchusa officinalis* (Font y Quer, no. 392); *Alanna tinctoria* Tausch (André, p. 30)	Anchuse, or true alkanet (Grieves, pp. 18-19)	Ancusa, no. 168 (Bierbaumer, p. 140)
	The illustrations in *Ex herbis* do not appear to be alkanet. In the text, however, *Ex herbis* describes two kinds: the first fits the description of *Anchusa tinctoria* and the second that of *A. officinalis*.			
62. Cynosbatos	[1.94: κυνόσβατος; *Ex herbis* text unrelated]	*Rosa canina L.*, or *Rose sempervirem* (cf. André, p. 112)	Dog rose or Wild briar (Polunin, no. 432)	Cynosbastos, no. 170 (Bierbaumer, p. 142)
	Drawings in *Ex herbis* resemble *R. canina*. Cockayne (I, 300-301) believes that the Old English version describes and draws *R. sempervirens* L., which Kraemer (p. 289) says is found only in Asia and Africa, but Polunin (no. 430) observes is located in the Mediterranean and south western Europe.			
63. Anagallis	[2.178: ἀναγαλλίς; *Ex herbis* text unrelated]	*Anagallis arvensis* L. (André, p. 30)	Scarlet pimpernel (Polunin, no. 967)	Spreritis, no. 138 (?) (Bierbaumer, p. 146)
	Gunther (p. 223) says D. is describing two plants, *A. arvensis* and *A. coerulea*, or blue pimpernel. Cockayne (I, 257) identifies the Old English no. 138 – sprentis - as scarlet pimpernel, but the text does not relate to *Ex herbis*.			
64. Panacia	3.48: πάνακες Ἡράκλεων	*Gladitsia farnesiana* L., or *Opopanax chironium* Koch (Font y Quer, no. 356; cf. André, p. 236)	Opoponax (Grieves, pp. 600-601; Polunin, no. 491)	
65. Purpurea	4.121: ἴον	*Viola odorata* L. (Font y Quer, no. 175); *Viola purpurea* (André, p. 170)	Sweet violet (Grieves, pp. 834-839; Polunin, no. 774)	Viola purpurea, no. 166 (Bierbaumer, p. 147)
66. Camalention; zamalention	[3.8: χαμαιλεών λευκός, *Ex herbis* unrelated; entry already in *Ex herbis*, no. 8]			
	The drawing in Vienna, Ms. 93, does not resemble *Chamaileon leuka* or *Atractylis gumnifera*, pine thistle, which drawings in nos. 66 and 67 are close to one another; see entry in no. 8; André (p. 340) noted *Zamalention* in *Ex herbis* but could be identify it.			
67. Camalention masculis; Zamalention masc.	[3.9: χαμαιλέων μελας; *Ex herbis* unrelated]			
	Pliny (22.21.47) says that the male variety is darker in color. It is possibly *Cardopatium corymbosum* L. Pers. (Polunin, no. 1463).			
68. Sion	2.127: σίον	*Sium latifolium* L.	Water parsnip (Polunin, no. 870)	*Sion* = *laber* no. 136 (Bierbaumer, p. 74)
	D.'s entry is probably *Sium nodiflorum* (Gunther, p. 167), but sium is now water parsnip. The Old English version gives the name as *laber*, which is *Porphyra laciniata* and *Ulva latissma* (see Cockayne, I, 255). Bierbaumer identifies it as *Sium latifolium*, or water parsnip. The description in *Ex herbis* seems closest to water parsnip although it could possibly be *Stratiotes aloides*, or water soldier (Polunin, no. 1565). Puschmann (II, 564-565) believes *Sion* in Alexander Trallianus may be *Sium latifolium*. André does not enter it, whereas Carnoy (p. 245) identifies Theophratus' *Sion* as *Sion qraecum*.			
69. Lichnis	[3.100: λυχνὶς στεφανωματικὴ; *Ex herbis* text unrelated]	*Lychis coronaria* L. Dest. (André, p. 192)	Rose campion (Polunin, no. 158)	
70. Abrotonum	3.24: ἀβρότονον	*Artemisia arborescens* L. (Font y Quer, p. 824; Carnoy, p. 1)	Southernwood; shrubby wormwood (Grieves, pp. 754-755; Polunin, no. 1438)	Abrotanum, no. 135 (Bierbaumer p. 140)
71. Aparine; filantropos	3.90: ἀπάρωη	*Galium aparine* L. (Font y Quer, no. 531; Carnoy, p. 30, cf. André, p. 3)	Cleavers goosegrass (Polunin, no. 1023)	